

HITCHCOCK'S *Machine Tool* BLUE BOOK

FOUNDED

JANUARY 1938

1905



SJOGREN

PRONOUNCED (SHOW-GRIN)

SPEED

COLLET CHUCKS

**For TOOL ROOM and ENGINE LATHES
Equipped with Hardinge Precision Collets.**

● Ask your nearest distributor for bulletin or use Coupon No. 1 ●

Ray H. Morris & Company, Inc.
Hardinge Sales Company, Inc.
Wright & Gode Equipment Co.
Hardinge Brothers, Inc.
W. W. Wents
William K. Stamets
Cleveland Duplex Mchry Co., Inc.
E. A. Kinsey Company
Iverson & Laux
F. A. Durnell
National Sales Engineering Corp.
Northern Machinery & Supply Co.
Colcord Wright Mchry. & Sup. Co.
C. H. Gosiger Machinery Co.
Moore Machinery Company
Eccles & Davies Mchry. Co., Inc.

7 South Main Street
277 Lafayette St.
3701 North Broad St.
1418 College Ave.
113 Powers Building
Jenkins Arcade Bldg.
Penton Building
331-335 W. Fourth St.
544 W. Washington Blvd.
709 Carlisle Place
2970 W. Grand Blvd.
Lumber Exchange Bldg.
1223-1229 N. Broadway
Bacon & McDonough Sns
550 Fifth Street
1910 Santa Fe Ave.

West Hartford, Conn.
New York, New York
Philadelphia, Penna.
Elmira, New York
Rochester, New York
Pittsburgh, Penna.
Cleveland, Ohio
Cincinnati, Ohio
Chicago, Illinois
Indianapolis, Indiana
Detroit, Michigan
Minneapolis, Minn.
St. Louis, Missouri
Dayton, Ohio
San Francisco, Calif.
Los Angeles, Calif.

Sjögren Manufacturing Company

PUBLISHED AT 508 SO. DEARBORN ST., CHICAGO

MARVEL NO. 8 (Metal Cutting) BAND SAW



The most versatile saw in its class—handles all work from 1/2" x 1/2" to 10" x 10"—cuts vertically at any angle from 45° right to 45° left. Best hand and power feed with large flat platen-type feed that simplifies setting up of even the largest and most cumbersome work.

Saves "wasteful cutting edges." Saves immeasurable planer, shaper and milling machine hours anywhere in shop and plant. Does all ordinary sawing efficiently as well as intricate, patching and heavy special operations. The MARVEL No. 8 is the logical first saw for any shop—as one of the lowest and most profitable machine tools.



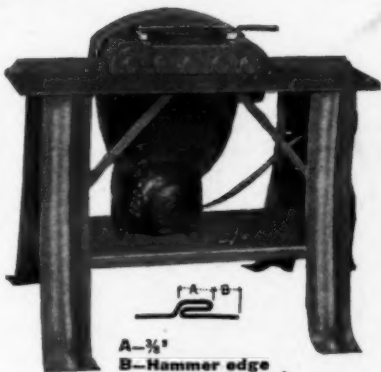
ARMSTRONG BLUM MFG. CO.

"The Hack Saw People"

1001 North Dearborn Ave. CHICAGO, ILL. U. S. A.

ALMAR CORNER LOCK FORMING MACHINE

Indispensable to every progressive sheet metal, ventilating and air conditioning shop, for all ducts and fittings.

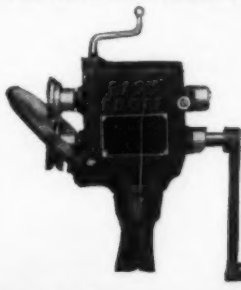


A— $\frac{3}{8}$ "
B—Hammer edge
any size desired

Automatically produces OPEN Pittsburgh or Hammer Locks at rate of 25 feet per minute.

EFFICIENT—NEAT AND SPEEDY

Write for details and demonstration—PAYS FOR ITSELF WITHIN A FEW MONTHS.



THE EASY EDGER

A flanging machine that flanges in one operation — turns right angle flanges on curved, straight or irregular fittings.

For every sheet metal, heating, ventilating and air conditioning shop.

Capacity — 20 gauge and lighter.
NOTE—will turn one flange height only— $\frac{7}{32}$ inches.

More simple than a burring machine —no gauges to adjust—speedy, accurate, uniform edges.

Quickmail Coupon No. 22 will bring you full information.

WARD MACHINERY COMPANY

MACHINES — TOOLS — SUPPLIES FOR SHEET METALS EXCLUSIVELY

564 W. WASHINGTON BOUL.

CHICAGO

ILLINOIS

ALMAR CORNER LOCK

Cap.
18"x18"

MARVEL NO. 8

(Metal Cutting)

BAND SAW



The most versatile saw built—handles all work from $\frac{1}{8}$ " x $\frac{1}{8}$ " to 18"x18"—cuts straight or at any angle from 45° right to 45° left. Both hand and power feed with large flat planer-type bed that simplifies setting up of even the largest and most cumbersome work.

Saves "warehouse cutting cost." Saves immovable planer, shaper and milling machine hours roughing to size and shape. Does all ordinary sawing efficiently as well as milling, notching and many special operations. The MARVEL No. 8 is the logical first saw for any shop—is one of the busiest and most profitable machine tools.



Send Coupon No. 5 for Bulletin 800-A

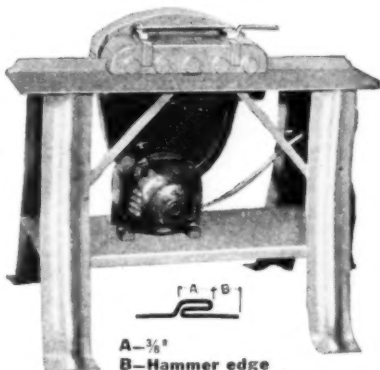
ARMSTRONG BLUM MFG. CO.

"The Hack Saw People"

5741 Bloomingdale Ave., CHICAGO, U. S. A.

ALMAR CORNER LOCK FORMING MACHINE

Indispensable to every progressive sheet metal, ventilating and air conditioning shop, for all ducts and fittings.



A— $\frac{3}{8}$ "
B—Hammer edge
any size desired

Automatically produces OPEN Pittsburgh or Hammer Locks at rate of 25 feet per minute.

EFFICIENT—NEAT AND SPEEDY

Write for details and demonstration—PAYS FOR ITSELF WITHIN A FEW MONTHS.

THE EASY EDGER

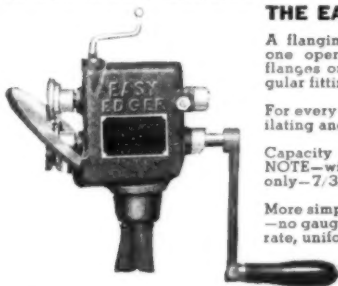
A flanging machine that flanges in one operation — turns right angle flanges on curved, straight or irregular fittings.

For every sheet metal, heating, ventilating and air conditioning shop.

Capacity — 20 gauge and lighter.
NOTE—will turn one flange height only— $\frac{7}{32}$ inches.

More simple than a burring machine — no gauges to adjust—speedy, accurate, uniform edges.

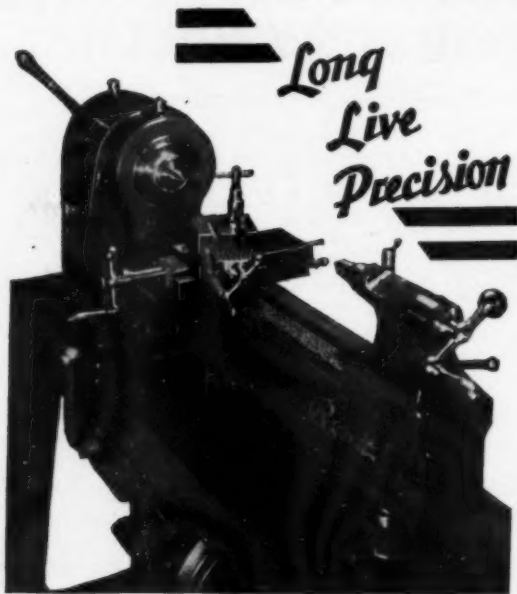
Quickmail Coupon No. 22 will bring you full information.



WARD MACHINERY COMPANY

MACHINES — TOOLS — SUPPLIES FOR SHEET METALS EXCLUSIVELY

564 W. WASHINGTON BOUL.



To GIVE PRECISION

Timken zero precision mirror finish roller bearings
—dynamic balance of every rotating part—
accurate gauging and inspection

To KEEP PRECISION

Maximum slide areas—sturdy construction—
three point bed mounting—perfection in ma-
terial and workmanship

RIVETT LATHE & GRINDER INC.
BRIGHTON, BOSTON, MASS.
PIONEERS IN BENCH LATHE DEVELOPMENT

Send Quickmail Coupon No. 24 for Circular

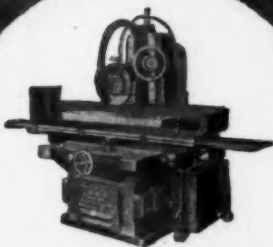
HIGH SPEED HYDRAULIC FEED SURFACE GRINDERS

Time Savings of 50% and More!

One customer reports grinding time reduced from 12 hours to 30 minutes—a prominent automobile manufacturer reduced grinding time on louvre dies from 6½ hours to 35 minutes—a third customer increases production on small typewriter parts over 50%!

Longitudinal table speeds up to a maximum of 125 feet per minute are obtainable on these Grand Rapids High Speed Surface Grinders.

Rugged, one-piece column and base castings guarantee a permanent alignment between vertical head ways and cross saddle ways.



This is No. 65 in the series that covers every requirement. Use Quickmail Coupon No. 72 when you write for Bulletin.

MANUFACTURED BY

GALLMEYER & LIVINGSTON CO.
305 STRAIGHT AVE., S. W. GRAND RAPIDS, MICH.

COLLETS AND.

**Collets for your Lathes and
Milling Machines**



**All types and sizes carried
in stock for prompt shipment**

Collets for your lathes and milling machines when you want them . . . instantly . . . promptly! HARDINGE Collets—recognized for accuracy and durability since 1890—are held in stock in sufficiently large quantities in Elmira, Chicago, New York, Detroit and Los Angeles to insure immediate delivery at any time.

This prompt service includes HARDINGE Collets for American, Burke, Cataract, Flather, Hendey, LeBlond, Monarch, Porter - Cable, Pratt & Whitney, Rockford, Sebastian, Sidney, South Bend, Sundstrand, Van Norman and all other lathes and milling machines.

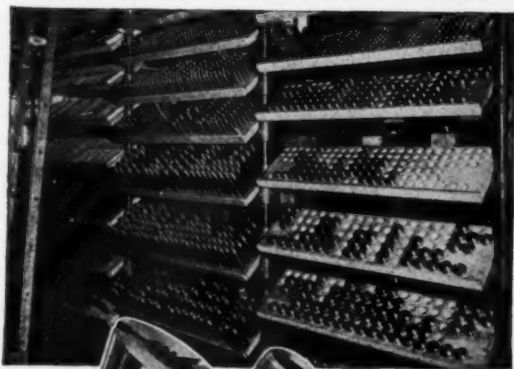
Send Quickmail Coupon No. 2 for bulletin No. 36

—ALWAYS SPECIFY HARDINGE COLLETS—

HARDINGE BROTHERS, Inc., - - - ELMIRA, N. Y.

D. FEED FINGERS

Collets and Feed Fingers for your Automatic and Hand Screw Machines



**Standard sizes in stock
for immediate delivery**

**Typical MORRISON
quality and quick deli-
very are planned to
meet with the satisfac-
tion of all users of
Collets, Feed Fingers
and Pads for Brown &
Sharpe, Cleveland,**

**Cone, Gridley, National Acme, New Britain, Davenport
and all other automatic screw machines. MORRISON
Collets also for Bardons & Oliver, Foster, Garvin, Pratt &
Whitney, Warner & Swasey, and all other hand screw
machines.**

Send Quickmail Coupon No. 3 for catalog No. 34-A

-MORRISON MEANS ECONOMY AND PERFORMANCE-

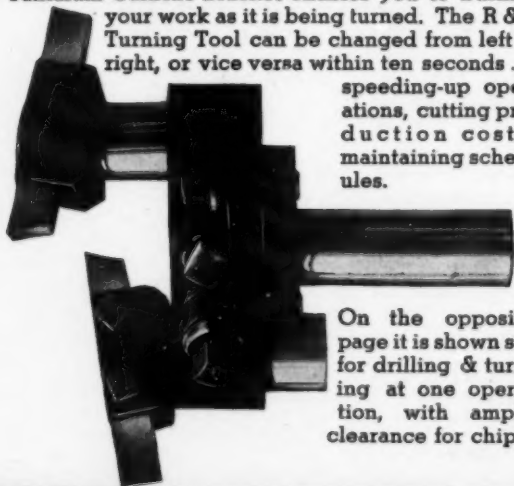
MORRISON MACHINE PRODUCTS Inc., ELMIRA, N.Y.

Right **R** and **L** Left

new and better . . .

Here's a new tool that does a better job . . . saves time, trouble and money . . . speeds-up production . . . replaces at least fourteen ordinary tools. Set-up as illustrated, it serves as a balanced turning tool with one cutter in advance of the other . . . turning two diameters at the same operation if desired. The Tantalum Carbide bracket enables you to burnish your work as it is being turned. The R & L Turning Tool can be changed from left to right, or vice versa within ten seconds . . .

speeding-up operations, cutting production costs, maintaining schedules.

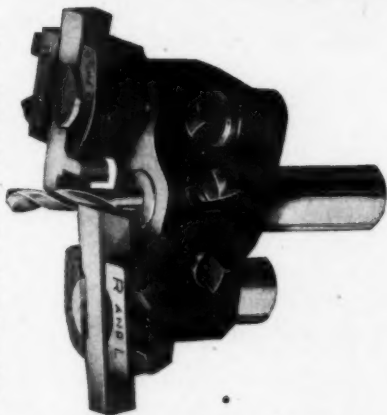


On the opposite page it is shown set for drilling & turning at one operation, with ample clearance for chips.

R and L Tools, 1825 Bristol St.,

Turning Tool

The R and L Floating Construction permits the drill to be centered accurately which overcomes any discrepancies in the machine. The set-up shown is particularly useful on a multi-spindle unit where lack of a suf-



ficient number of positions would entail subsequent operations. The R and L Turning Tool offers you an actual cash saving of \$235 initial outlay over the cost of the tools necessary to do the jobs it will perform with ease. It burnishes, cuts, drills . . . Doesn't that sound worthy of your investigation?

Made in three standard sizes, or built to order to your specifications.

SEND QUICKMAIL COUPON No. 64 FOR YOUR FREE COPY of our new 32-page R and L Turning Tool Manual. It describes R and L Tools in detail and shows many interesting uses for these versatile tools.

Nicetown, Philadelphia, Pa.

Simplify **YOUR DRILLING** *with this Multiple Spindle Drill*

● "Buffalo" No. 16 Multiple Drills (2, 3, 4, or 6 spindles) soon pay for themselves in operating economies alone, to say nothing of fine precision work that is turned out with these drills day after day. One operator can easily manage several operations in less time than when using single spindle drills.

Ruggedly constructed for many years of service. V-Belt drive, 5 speeds on each spindle.

Send Quickmail Coupon No. 8 for Bulletin 2730 - C.

BUFFALO FORGE COMPANY

161 Mortimer St.,

Branch Engineering Offices

Buffalo, N. Y.

In Principal Cities

IN CANADA: Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

"Buffalo"

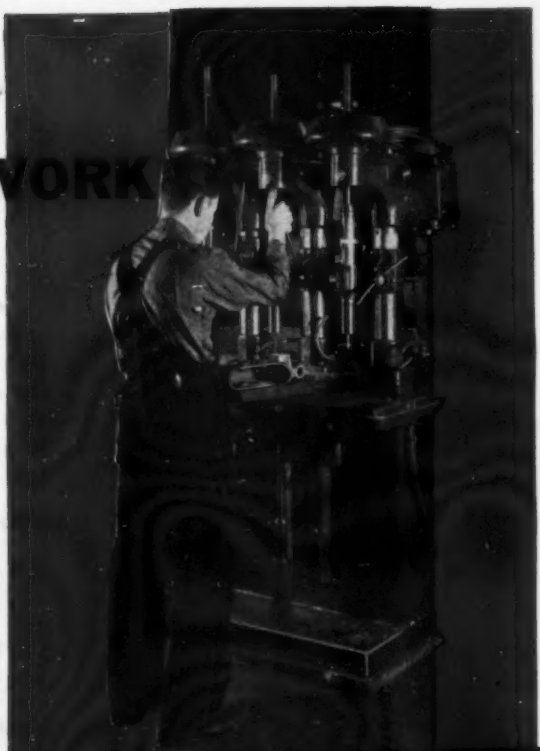
**No. 16
DRILLING**

G WORK

ill

or
ng
on
ter
ral
gle
ce.

Y
y.
L.



Sensitive
MACHINES

Look'em All Over!



**5 HP.
Model
complete,
\$268.50**



Then Check Queen City Grinders and Buffers Against Higher-Priced Competitive Makes

Compare the mechanical features . . . give everything the closest scrutiny. Note that Queen City motors are heavy duty ball bearing Induction—not slower speed split-phase motors. Queen City motors are not overrated—they deliver the full rated power.

Try a Queen City for 30 days. If you're not entirely satisfied, just return it—that's all.

Compare These Prices:

1/3 hp.	\$ 29.50
1 hp.	112.50
2 hp.	168.50
3 hp.	218.50
5 hp.	268.50

All Queen City Grinders are equipped with high grade Carborundum wheels at no extra cost.

The 3 and 5 hp. models have shatterproof glass eye-shields—1 hp. and larger models have provision for hooking up to exhaust systems. These are just a few of the many superior features.


Quickmail Coupon No. 32 will bring you the whole story

QUEEN CITY MACHINE TOOL CO.

CINCINNATI, OHIO

CHECK UP YOUR CASTING COST !
then compare it with **HARVILL'S !**

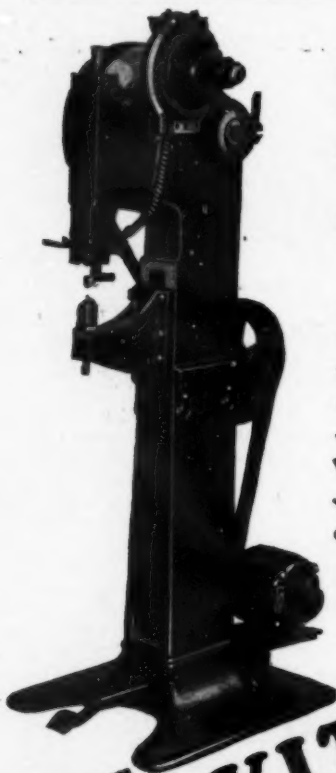
*Dealers' Inquiries Solicited
for Exclusive Territories*



It's obvious how and why this revolutionary new die-casting machine saves money. You pay only half as much for a Harvill as for any other pressure machine of equal capacity. It makes your plant self-contained—no expensive delivery delays, no contractors' profits to pay—keep them yourself. Maximum production at minimum cost. Make us prove it! We can—and also make and test your dies for any part or group. Send Quickmail Coupon No. 57 for Catalog.

H. L. HARVILL, INC.
2344 E. 38th St., Los Angeles, Cal.

HARVILL
HIGH-PRESSURE
CASTING MACHINES



Automatically
feeds and sets
SOLID RIVETS
and at rates up to
3200 an hour.

paying for itself by enabling you to substitute solid rivets for the more expensive types. Our new bulletins numbers R-3 and BR-1 will give you the specifications of the standard machines.

Write for them with
Quickmail Coupon
No. 14.

RIVITOR
Mfg. by Tomkins-Johnson Co.
605 N. Mechanic Street,
Jackson, Michigan

Agents in principal cities. Gaston E. Marbaix, Ltd. in London

1905



1938

FLEXIBLE SHAFTS AND MACHINES

TYPE
VC 2-4



Quality Equipment Only

**FLEXIBLE SHAFT
MACHINES
OF MANY TYPES
AND SIZES**

**FOR HUNDREDS OF VARIOUS
OPERATIONS**

LET US KNOW THE KIND OF A JOB
YOU WANT TO DO. WE WILL FIT A
MACHINE PROPERLY FOR THE
WORK.

*OVER THIRTY-THREE
YEARS IN THIS
INDUSTRY*

Exclusive Manufacturers

**Flexible Shafts, Machines
and Attachments**

Send Quickmail Coupon No. 26 for catalog

**N. A. STRAND & CO.
CHICAGO**

5001-5009 N. Wolcott Ave.

TYPE
MP5





PEDESTAL COMPARATOR



**INSPECTION
SPELLS
PERFECTION
WHEN PARTS ARE
CHECKED ON A J&L
COMPARATOR**

THE J&L Comparators meet the inspection requirements of tool room, laboratory, and production line.

They may be used to compare objects against a master outline, or to make direct measurements of height or depth and lead or spacing. They will measure angles within 5 minutes of arc.

The J&L Comparators are *the* machines on which to check each operation, on every part, so that your final product will bear an assured O. K. — let inspection spell perfection.



BENCH COMPARATOR

SEND QUICKMAIL COUPON #9 FOR CATALOG

**JONES & LAMSON MACHINE COMPANY
SPRINGFIELD, VERMONT, U. S. A.**

Look For This Mark Before You Buy



Imperial Roller Bearing Punches

Offered in 3 sizes. Will work inside 90 degrees. Quick changing for punches and dies. No cams to wear. Stripping action is positive.



No. 16 Bench Punch

Capacity $\frac{3}{8}$ inch through $\frac{1}{4}$ inch iron. Depth of throat $3\frac{1}{2}$ inches. Height of throat $\frac{3}{8}$ inch. Length of handle 22 inches. Furnished with or without work table and equipped with 3 punches and dies in $\frac{1}{32}$, $\frac{1}{16}$, and $\frac{1}{8}$ inch throat depth unless otherwise specified. Same style made in $6\frac{1}{4}$ inch size throat depth.

*Send Coupon No. 42
for the complete
Whitney catalog*



**Made by the World's Largest Manufacturers
of Punches and Shears.**

Whitney Metal Tool Co.
ROCKFORD, ILLINOIS



9" x 3' South Bend Quick Change Gear Underneath Belt Motor Driven Precision Lathe on a manufacturing operation.

MODERN Industrial machining operations requiring speed, precision and versatility are being handled in hundreds of plants, tool rooms, and machine shops by the new 9-inch South Bend Series "T" Lathes. New features that insure accuracy and maintain it over a period of years, combined with fine workmanship and design, prove these lathes to be a profitable and productive investment.

68 Sizes and Types of Lathes for every purpose.

9 in. lathe prices start at \$ 85
11 in. lathe prices start at \$271
13 in. lathe prices start at \$448
15 in. lathe prices start at \$544
18 in. lathe prices start at \$642



Send Quickmail Coupon No. 52 for

BULLETIN

Bulletin No. 9-C illustrates, describes and prices the different models of the 9-inch lathe. Copy sent free, upon request.

SOUTH BEND LATHE WORKS

766 East Madison Street, South Bend, Indiana, U.S.A.

SOUTH BEND Precision LATHES
MODERN LATHES FOR MODERN INDUSTRY

**PRECISION
BUILT**

Ready for the Job

CANEDY- OTTO

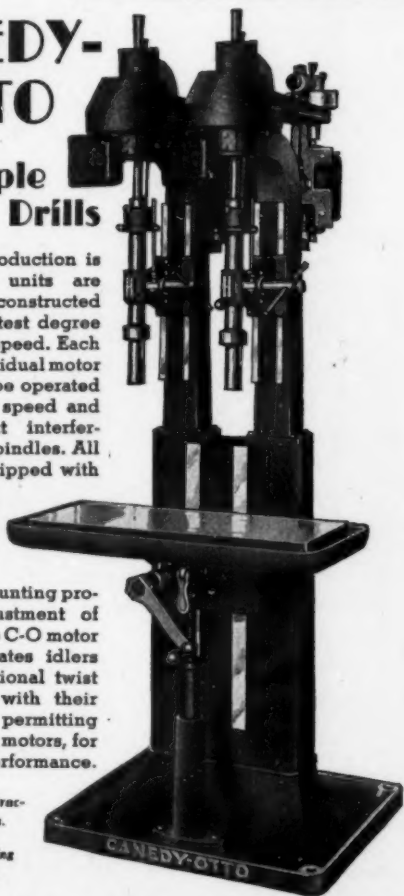
Multiple Spindle Drills

Where large production is required these units are designed and constructed to give the greatest degree of accuracy and speed. Each spindle has individual motor drive and may be operated at any required speed and stopped without interference with other spindles. All spindles are equipped with annular ball bearings and ball bearing motor brackets.

Sliding motor mounting provides easy adjustment of belt tension. The C-O motor mounting eliminates idlers and the conventional twist and turn belts with their friction losses, permitting the use of smaller motors, for more efficient performance.

There are many other attractive advanced features.

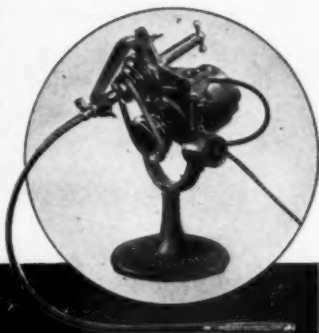
Coupon No. 11 will bring you the whole story.



CANEDY-OTTO MFG. CO.

CHICAGO HEIGHTS, ILL.

There are many styles and sizes of Kellerflex Flexible Shaft Machines—each with hundreds of attachments and accessories for all kinds of jobs. Let us show you how these machines can improve and speed up your work. Use Quickmail Coupon No. 66 for some interesting literature.



THE KELLERFLEX
does it quicker and better

Modern shops use Kellerflex power instead of muscle—with remarkable savings. Above is a typical example—smoothing up small castings with grinding wheels and abrasive belts—a tremendous improvement over hand filing and sand papering. And there are hundreds of other uses. Kellerflex equipment is precision built, and will deliver years of efficient service. Send for literature.

PRATT & WHITNEY
Div. N-B-P Co. **HARTFORD, CONN.**

- for Profitable Production in 1938

- - - - use Brown & Sharpe Products

Milling Machines

Grinding Machines

Screw Machines

Machinists' Tools

Cutters and Hobs

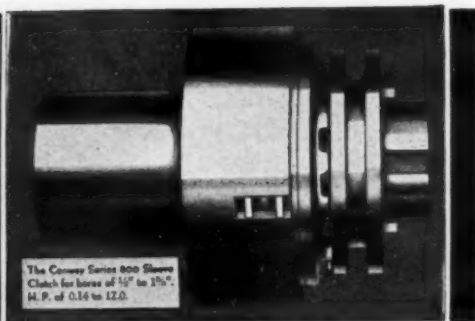
Pumps

Misc. Shop Equip.



Have you our general catalog
No. 140? A copy gladly
sent on request. Brown &
Sharpe Mfg. Co., Providence,
R. I., U. S. A.

BROWN & SHARPE



The Conway Series 800 Sleeve
Clutch for bores of $\frac{1}{2}$ " to $1\frac{1}{2}$ ".
H. P. of 0.14 to 12.0.

DRAG-FREE IDLING EASY ENGAGEMENT INSTANT RELEASE

These same three qualities, for which the large Conway Patent Clutches are famous, are present to just as great a degree in the tiny Conways of the X. Y. Z. series.

Principally for low horsepower installations, these small Conway Clutches perform just as ably as their "big brothers." Bulletin XYZ gives specifications and prices. Send for it. Consult table below for other catalogs

TORQUE In Inch Lbs.	H. P.	BORE	CATALOG
95 — 975	.14 to 12	$\frac{3}{4}$ " to $1\frac{5}{8}$ "	XYZ
400 — 6300	1 to 116	$1\frac{3}{16}$ " to $4\frac{1}{4}$ "	P20
3350 — 91,000	13 to 990	$2\frac{7}{16}$ " to 6"	L28

Conway

THE CONWAY CLUTCH CO.
1541 Queen City Ave., Cincinnati, O.

The REASONS WHY Putnam Tools Cut Faster—Last Longer

**STANDARD
or
SPECIAL**



**They're
QUALITY
TOOLS**

EVERY PUTNAM TOOL IS

- Made from the very finest grade of genuine high[°] speed steel.
- Heat-treated by submersion in salt baths—the most modern process in use today.
- Designed for fast and efficient cutting performance that meets the most exacting requirements.
- Manufactured to the highest degree of accuracy and to unsurpassed standards of workmanship.

A SPECIAL ANNOUNCEMENT of unusual importance will appear in this space next month. Watch for it!

SEND QUICKMAIL COUPON 67 FOR OUR CATALOG

PUTNAM TOOL CO.

2983 CHARLEVOIX AVE.

DETROIT, MICH.



A NEW SMALL PRESS WITH A LONG STROKE



With automatic feed, 10,000 operations per hour are possible. NON-REPEAT clutch stops after each stroke or can be made to run continuously.

No. 1 Roussele

**5-inch Die Height—
2½ to 3-inch Stroke
Increased Capacity—
New Economies in
Deep Draw Work**

Especially designed for trimming deep die castings and all other types of deep draw work now handled on large, heavy presses because of the long stroke needed.

An efficient companion to our regular No. 0 Roussele. Bigger and heavier all the way through.

No. 0 Roussele \$100

No. 1 Roussele \$135

(less motor and stand;
stand \$15 extra)

The only inclinable punch presses at these prices.

*Use Quickmail Coupon
No. 21 when you write
for bulletin giving
complete specifications.*

DAVID J. ROSS CO.
BENTON HARBOR, MICHIGAN

DURABLE



FEDERAL DIAL INDICATORS

FEDERAL PRODUCTS CORPORATION

PROVIDENCE, R. I.

DETROIT

CHICAGO

MUNCIE

CLEVELAND

NEW YORK

Send Quickmail Coupon No. 54 for Catalog

DIE MAKING MACHINES

By OLIVER of ADRIAN

Save 50% to 60%

THEY ARE FAST AND ACCURATE
ON ALL SAWING, FILING AND LAP-
PING OPERATIONS.

They permit the use of LESS
SKILLED OPERATORS.

They assure WORK ON
SCHEDULE.

Just the machine you have
been looking for to relieve
congestion in the Tool Room.

The Oliver of Adrian die making machine should not be confused with ordinary filing machines. The OLIVER actually saws out the blank—then finishes the job with files—provides correct clearance — assures maximum output and long life.

ORDER AN OLIVER TODAY

You will never regret the investment. Models available as low as \$125.00

(10 sizes for materials up to 3" thick)

Send Quickmail Coupon No. 17
for information.

SP-2 Model for 1" Materials

OLIVER INSTRUMENT COMPANY

1408 EAST MAUMEE ST.

ADRIAN, MICHIGAN

*Cut Your
Cutter Wheel
Expense with a
RIDGE*



The wheel in a **RIDGE** is a thin blade, coined out of alloy tool steel, hammered, heat-treated, assembled in a solid hub. Gives you far more cuts per wheel. Assures quicker easier cleaner cuts, practically no burr. Reinforced cutter housing guaranteed not to break or warp, always cuts true. Try one at your Jobber's. Find out why hundreds of thousands of users take pride in owning the **RIDGE**. For economy and better cutting, buy the better looking **RIDGE**.

**The Ridge Tool Co.,
ELYRIA, OHIO**

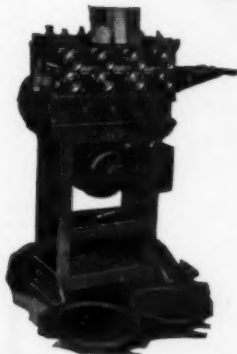
RIDGE

Cut your sheet metal fabrication costs with

MODERN

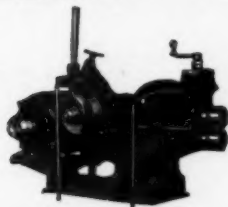


EQUIPMENT

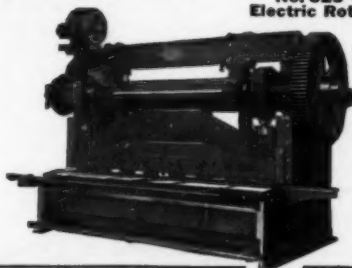


**No. 528 Power Multiple
Roll Forming Machine**

Let us show you how Pexto machines and tools . . . made by craftsmen who pioneered the development of modern sheet metal working methods . . . can cut your production costs and increase the efficiency of your sheet metal department. We make an exceptionally complete line of equipment for both the large and the small shop . . . in power driven and manually operated types. Write for catalogs or bulletins on items of interest.



**No. 623 Universal
Electric Rotary Machine**



**No. 38-120
Power
Squaring
Shear**

THE PECK, STOW & WILCOX CO.
SOUTHINGTON, Since 1785 CONNECTICUT



Money-Saving Uniformity In These Carriage Bolts

So alike you can't tell them apart, Triplex Carriage Bolts assure you quick low-cost assembly. Faultless threads the accurately formed nut can spin tight on. True squared under head, so they fit snug. Electric heat-treated, quenched in rust-resisting oil. Buy Triplex for worryless economy.

Write for samples and prices.

THE TRIPLEX SCREW CO.
5377 Grant Ave., Cleveland, Ohio

TRIPLEX

Complete
Line of

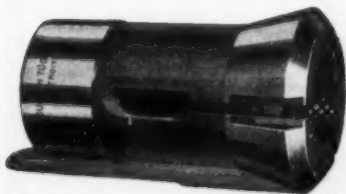
CAP AND SET SCREWS, BOLTS AND NUTS

Millions Sold

Millions Satisfied



SINGLE-piece spring type collets for all makes of hand and automatic screw machines. All have exclusive Sutton **DIAMOND-GRIP** serrations that grip tighter under less tension.



Also Master-Type Collets with replaceable pads with **DIAMOND-GRIP** Serrations.

Be sure your screw machine accessories file includes the complete Sutton Catalog listing **DIAMOND-GRIP** Collets and their perfect companions, Sutton Feed Fingers, for all machines.

COUPON No. 59 Will save you time and bring you a copy by return mail.

SUTTON TOOL CO., 2842 W. Grand Boulevard,
DETROIT, MICHIGAN

"30% PRODUCTION INCREASE OVER MULTIPLE DRILL OF EXPENSIVE MAKE"



The Adams-Campbell Co., Ltd., of Los Angeles, took five heads and columns from Walker-Turner 900 Series Drill Presses, mounted them on a special table, and produced, with these inexpensive machines, 30% more work than with the expensive multiple drill formerly used!

Further proof that in ruggedness and all-around precision, Walker-Turner tools are worthy of a place side-by-side with your big machines. Proof, too, that specialising in small machines has built into this line unusual value at the price. See the 900 Series Drill Press and other tools at your distributor's, or send Quickmail Coupon No. 61 for catalog. Walker-Turner Co., Inc., 1718 Berckman St., Plainfield, N. J.

WALKER-TURNER *Engineered* POWER TOOLS

WHITNEY LEVER PUNCHES

FOR ALL SIZES AND CLASSES OF WORK— HERE ARE A FEW TYPES



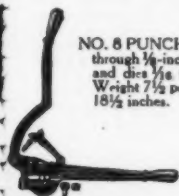
NO. 2 PUNCH—Length 23 inches.
Capacity $\frac{5}{16}$ -inch hole through $\frac{1}{4}$ inch
iron. Punches and dies in sizes $\frac{7}{32}$ to
 $\frac{1}{2}$ inch by 64ths.



NO. 1 PUNCH—Length 34 inches.
Capacity $\frac{3}{8}$ inch hole through $\frac{1}{4}$ inch
iron. Punches and dies in sizes from $\frac{1}{8}$
to $\frac{7}{16}$ by 64ths.



NO. 4B PUNCH—Length $8\frac{1}{2}$ inches
Capacity $\frac{1}{4}$ inch through 16 gauge.
Deep throat—2 inches. Weight 3 pounds.
Punches and dies— $\frac{1}{16}$ to $\frac{7}{32}$ by 64ths.



NO. 8 PUNCH—Capacity $\frac{1}{4}$
through $\frac{1}{8}$ -inch iron. Punches
and dies $\frac{1}{16}$ to $\frac{7}{16}$ by 64ths.
Weight $7\frac{1}{2}$ pounds. Length
 $18\frac{1}{2}$ inches.



NO. 6 PUNCH—Capacity $\frac{1}{4}$ inch
through $\frac{3}{16}$ inch iron. Punches and dies
— $\frac{1}{8}$ to $\frac{7}{32}$ by 32ds. Weight 10 lbs.
Length $20\frac{1}{2}$ inches.



CHANNEL IRON PUNCH Companion
to No. 2 Punch and all parts interchangeable.
Capacity $\frac{1}{4}$ inch through $\frac{1}{4}$ inch iron.

**NO. 91 BENCH
PUNCH**—Capacity $\frac{3}{8}$ -in. through
 $\frac{1}{4}$ -inch; 1-inch
through $\frac{7}{16}$ -inch;
2 inches through
 $\frac{1}{2}$ -inch. Depth of
throat 5 inches.
Weight 82 lbs.



*Coupon No. 10 will
bring you our com-
plete catalog showing
our full line of lever punches.*



WHITNEY MFG. CO.

636 RACE ST. ROCKFORD, ILL.

PROCUNIER

**HIGH SPEED
PRECISION**

**Tapping Attachments
for 1938**

WILL INCREASE YOUR PROFITS



**ELIMINATE:
TAP BREAKAGE
SPOILED WORK**

**CUT
TAPPING
COSTS**

**SEND FOR
NEW FOLDER**

**USE QUICKMAIL
COUPON NO. 13.**

PROCUNIER SAFETY CHUCK CO.
14 S. CLINTON ST., CHICAGO, ILL.

NOPAK

3 and 4-Way Operating Valves

FOR AIR, WATER AND OIL



3 and 4-Way Foot Operated



3 and 4-Way Hand Operated

The flat disc type design incorporated in the NOPAK valve permits uniform lapping of the disc and seat, allowing continual operation to actually improve the sealing surfaces.

NOPAK valves utilize the pressure to seal the valve at all times, are easy to operate, provide positive action, and full pipe area through the valve.

- ★ **No Packing**
- ★ **No Maintenance**
- ★ **Leakproof**
- ★ **Protected Disc and Seat**
- ★ **Quick or throttling action, as desired**

WRITE for Bulletin 65

*Use Quickmail
Coupon No. 20*

GALLAND-HENNING

MANUFACTURING COMPANY

2753 South 31st Street

Milwaukee, Wisconsin

This tool will save YOU MONEY



\$89⁵⁰

WITH NO. 2 M.T.
SPINDLE, BUT
WITHOUT MOTOR

The NEW 17 in. DELTA DRILL PRESS

Read the brief outline of the specifications of this remarkable tool. See if you do not agree it is the greatest drill press value in years. Check it point for point against any drill press you have ever seen. Notice its many new features and special advantages. You will find many ways that this new tool can save money for you.

Five Speeds: (385, 600, 935, 1450, 2240 R.P.M.)
Floating Drive: Pre-loaded double-seal ball bearings; 16-tooth splined spindle; Table - Raising gear; Head - Raising gear; Tilting or production table; Completely enclosed belt; Safety spring wind; Foot power feed. Separate drill press heads available.

Write For CIRCULAR

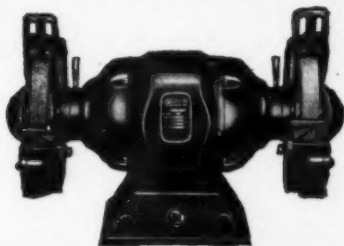
Send Quickmail Coupon No. 29 for name of nearest Delta dealer and complete descriptive literature.

DELTA MANUFACTURING CO.
654 E. Vienna Ave., Milwaukee, Wisconsin

BALDOR

BALL BEARING **GRINDERS**

Now Streamlined



HEAVY DUTY — Won't Burn Out

No. 800— $\frac{1}{2}$ H. P. totally-enclosed, ball-bearing motor; 110 volts, 1-phase, 60 cy. 1700 R. P. M. 8" x 1" wheels. Wide clearance between wheels and motor frame. Low current cost.
1 YEAR GUARANTEE (Guaranteed against burn-out for 2 years).

\$48⁰⁰

MAIL QUICKMAIL COUPON No. 18 FOR BULLETINS

BALDOR ELECTRIC CO.
4368 Duncan Ave., St. Louis, Mo.

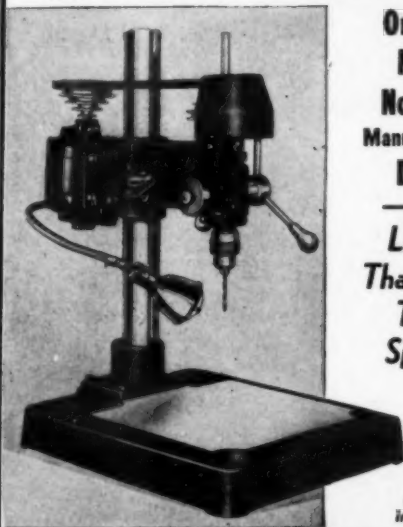
BALDOR GRINDERS
are built by Motor Specialists



FORGE COMPANY

Uses

Vimco General Machine Lights



- ★ Increases Efficiency.
- ★ Ends Glare.
- ★ Universal Adj. Mount.
- ★ Attractively Finished.
- ★ 24 Types.

**On Its
New
No. 15
Manufacturing
Drill**

**Light
That Hits
The
Spot!**

Send
Quickmail
Coupon
No. 63 for
information.

VIMCO MFG. COMPANY, INC.

109 Chenango Street

Buffalo, New York

NEW

ALL-PURPOSE MOTO-TOOL

**SAVES TIME AND
LABOR ON DIFFI-
CULT PRECISION
WORK**

\$16⁵⁰

Post-
paid

MODEL 2

**FASTER
MORE POWERFUL**

An entirely NEW and attractive motor-in-hand tool that every mechanic will appreciate. It grinds, drills, routs, carves, polishes, etc. on all materials. Turns out work you can show with pride. Takes 10 seconds to do 10 minutes hand work. Absolutely safe and dependable. Many users have found that this rugged machine pays for itself on the first job. There are scores of jobs in every plant where it can be used to advantage.

**Top: Universal
Stand \$4.50**

**Bottom: Shaping
Table \$2.50**

Stand Extra



Exclusive refinements include—integral finger grip close to the chuck—self-releasing chuck lock—convenient snap switch—air cleaner with removable screen and a practical hanger. Sturdy construction. Powerful—about 27,000 r. p. m. Plugs into any A. C. or D. C. socket. Runs cool. Oilless bearings—practically no maintenance expense. Weighs 13 oz.

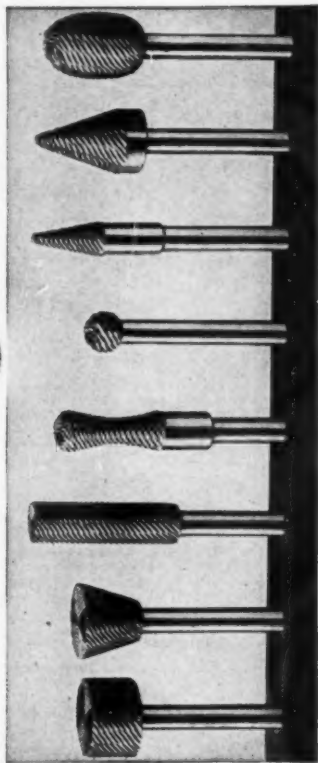
TWO NEW ACCESSORIES. Universal Stand and Shaping Table for accuracy and control. Practical tool sets and complete assortment of tools available.

Ask your distributor to demonstrate—or order direct on ten day money-back trial.

Send Quickmail Coupon No. 44 for
illustrated booklet **FREE.**

DREMEL MFG. CO.
5825 CT **Racine, Wisconsin**

FORD HAND CUT ROTARY FILES



Just a few of the many standard shapes which are carried in stock
Send Quickmail Coupon No. 27 for full information

413 PERSHING AVE. **M. A. FORD MFG. CO.** DAVENPORT, IOWA

COMPACT



Slightly larger than an electric motor—COMPACTNESS is just one of the many desirable features of the Lenney Transmission.

Infinite, positive speeds with reduction from 2-2/5 to 1 to 8 to 1 can be selected while running or idle. There are many other surprising features in THE NEW LENNEY

VARIABLE SPEED TRANSMISSION

Investigate this unit — it may be the solution to your transmission problems.

Built in Motorized and Unit Types from 1/2 to 5 H.P.

Territories available to agents of proved ability.

Write for New Catalog

**The LENNEY MACHINE
— & MFG. CO. —**

WARREN

OHIO

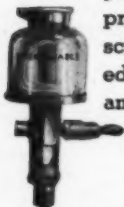


IF IT'S A GITS OILER IT OILS . . .

No matter what the requirements, you'll find a sturdy, dependable GITS Oiler for every lubrication need—reflecting more than a quarter century of progress in lubrication engineering.



Hope you'll avail yourself of this long experience—tell us your particular lubrication problems—and let us prescribe oilers especially adapted for your service, without any obligation on your part.



*Quickmail Coupon No. 62
will bring you full
information.*



GITS BROS. MFG. CO.

1860 South Kilbourn Avenue,

CHICAGO, ILLS.

HITCHCOCK'S *Machine Tool* **BLUE BOOK**

**Selected
Circulation**

**25,000
Monthly**

JANUARY, 1938

THIRTY-THIRD YEAR

How About Business ?

There was a further recession of machine tool orders in November to the Index of 127.7.

This recession extended well into December. However, the late reports of our salesmen are to the effect that there seems to be a better feeling everywhere, and many manufacturers anticipate a considerable increase in orders early in 1938. They believe the "corner" of the recession has been turned.

Babson is optimistic. He says that business fundamentals are sound and the banking situation excellent for an early upturn. He also anticipates that during the next five years there will be a utility spending program of \$ 5,000,000,000, housing \$ 12,000,000,000, armaments \$5,000,000,000 and for railroad re-equipment \$3,300,000,000, which surely will boom the heavy industries.

If we can shake off the dread or uncertainty thrown over us by the Big Depression, the future looks promising.

Published By

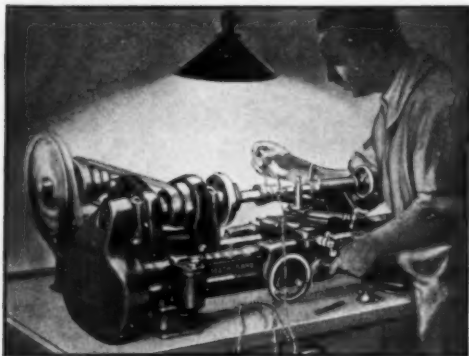
Hitchcock Publishing Co.

508 S. Dearborn St.,

Chicago, Ill.

A New 9-inch South Bend Precision Lathe

Offered in seven different types for a variety of installations, a new 9-inch Workshop Precision Lathe is announced by the 'South Bend Lathe Works, South Bend, Ind.



The new lathe is regularly equipped to cut screw threads from 4 to 112 per inch, including $11\frac{1}{2}$ pipe thread. It has power longitudinal feeds of .002 to .015 of an inch per revolution of the spindle. Another innovation is the 12-speed model with spindle speeds ranging from 40 to 1200 r.p.m., adapting the lathe to the machining of very small diameter parts of steel, cast iron, brass, aluminum, bronze, etc.

A simplified twin gear reverse is provided for cutting right and left-hand screw threads; improved back-geared headstock with adjustable and larger spindle bearings and a ball thrust bearing on the $\frac{3}{4}$ " hollow steel spindle; a heavier designed saddle with adjustable gibs on cross feed and compound rest; a precision lead screw guaranteed to meet the most exacting requirements for cutting accurate screw threads on master taps, precision thread gauges, etc.; and all gear teeth are precision cut from solid steel or semi-steel blanks.

(Continued on Page 46)

DO IT—

Better—Faster—for Less!

with **ODIN UNIVERSAL**

**Precision Vises
Swivel and Plain**

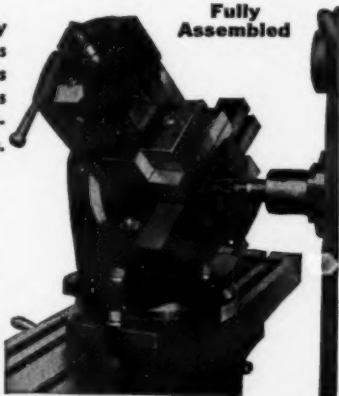
with Interchangeable Jaws and
Hardened and Ground Parallels

They quickly pay
their costs in savings
on High Tool Costs
—Expensive Fixtures
—Patterns and cast-
ings—Extra Set-Ups.

Investigate the
money saving
possibilities of
ODIN VISES

Send Quickmail Coupon
No. 71 for full facts
and prices.

**Fully
Assembled**



Let us show you how to make cheaper and
better jigs and fixtures at a greatly reduced
cost—with a great saving in time.

ODIN UNIVERSAL
CORPORATION

CHICAGO

Sales Division
110 S. Dearborn St.,

Telephone
Franklin 3281

The different types of the new lathe are: 1- the new 12-speed model; 2- the adjustable horizontal motor driven bench lathe; 3- the underneath belt motor driven lathe; 4- the pedestal adjustable motor driven floor leg lathe; 5- the double friction counter-shaft driven lathe; 6- the 9-11 inch swing raising block lathe; and 7- the tool room lathe with draw-in collet chuck, graduated taper attachment, thread dial indicator, micrometer carriage stop and chip pan.

To insure extreme precision accuracy on all machining operations, the one-piece cast, semi-steel lathe bed has prismatic V-ways, handscraped to provide accurate bearing surface and assure permanent alignment of the headstock, tailstock and carriage. Four bed lengths are available: 3, 3½, 4 and 4½ feet, with distances between centers of 17, 23, 29 and 35 inches respectively.

It is asserted that 64 major tests to measure accuracy to within .001 of an inch are made on each 9-inch lathe—gauging alignment of the headstock spindle with the bed; alignment of the tailstock spindle with the headstock spindle, etc.

More than 35 attachments may be fitted to these lathes to increase the range of operations, making it an all-purpose tool for the automotive or refrigeration service shop, experimental laboratory, home workshop, manufacturing plant, tool and die shop, trade or high school workshop, etc.

The Company is issuing a new catalog No. 46 which illustrates and describes the new 9-inch lathe. In addition, valuable information is included on performing all types of lathe work. Any reader may obtain a free copy by addressing the Technical Service Dept., at South Bend, mentioning The BLUE BOOK.

"Controlled Strip Thickness"

Pratt & Whitney deserve credit for an especially artistic and instructive booklet on their electrolimit mill gages. Anybody interested in continuous gauges, classifier gauges and strain gauges may write to Pratt & Whitney, Division Niles-Bement-Pont Co., Hartford, Conn., for a copy which will be sent without obligation. Please write on your business letterhead and mention The BLUE BOOK.

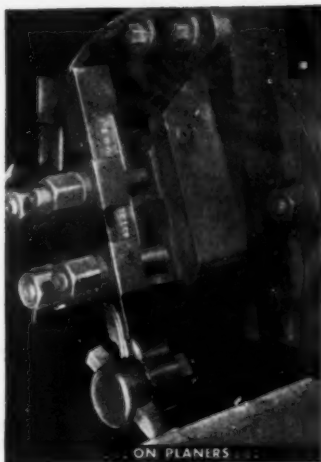
ARMSTRONG

TRADE MARK REG. IN U.S. PAT. OFFICE



**Want to
find profit
leaks—
Write for
ARMSTRONG
B-35
Catalog**

*Use Quickmail
Coupon No. 6*



Check the tools you are using on lathes, planers, slotters, shapers and on turret lathes and screw machines against the ARMSTRONG TOOL HOLDER shown for each specific operation in an ARMSTRONG B-35 catalog. Wherever you find a forged bar tool, or "wrong" tool holder, there is a profit leak.

The Armstrong System of Tool Holders (over 100 sizes and shapes) provides turning tools, cutting-off tools, boring tools, threading tools, knurling tools, etc. Each is the finest for its work, each a permanent tool that "Saves All Forging, 70% Grinding and 90% High Speed Steel". Each is a stronger, more efficient tool that will *stand up under speeds and feeds limited only by the capacity of the machine tool.*

If you want end profit leaks, use the right ARMSTRONG TOOL HOLDER for each operation.



Armstrong Bros. Tool Co.

"The Tool Holder People"

308 N. Francisco Ave., Chicago, U.S.A.

Eastern Warehouse & Sales: 199 Lafayette St., N. Y.
San Francisco, London

Abrasaw No. 48 For Wet Cutting

Similar to the No. 48 Abrasaw cut-off machine for dry cutting, this unit mounts a coolant tank on one side, equipped with a pump and pipes for supplying cutting lubricant to both sides of the cutting disc.

The spindle runs in ball bearings and the whole head is suspended on Timken bearings, providing a free, easily-controlled swing of the cut-off disc. This permits bringing the disc down on the material with a light touch, and after the cut has been started it may be finished rapidly. It is claimed that bringing the disc down hard on the work causes unnecessary disc breakage and excessive wear and also tends to distort the edge of the disc, causing it to cut at an angle. It is asserted that with proper start of the cut, square cuts are obtained and disc wear is reduced to a minimum.

Two sizes of flanges are furnished—a pair of 6½ and a pair of 4½-inch. When a 12" disc is put on the machine, the 6½ inch flanges are used until the disc is worn down to a point where the 4½ inch flanges are required. This arrangement provides maximum support for the discs at all times.

Hand knobs at front and rear operate a stop. The rear knob controls the total movement of the head, while the front knob controls the movement of the head to compensate for disc wear.

A quick action vise, operated by foot pedal or hand, is provided. Both hands are free when operating vise with the foot pedal. One hand may be used for controlling the cutting and the other for feeding the work in the vise. When starting a run of cuts, the vise is first set by hand so it will take a movement of ¼ to ⅜ inch of the vise jaw to clamp the work. This is necessary to provide enough movement of the foot pedal to operate the water valve properly. The water valve is arranged so that depressing of the foot pedal clamps the work and starts the flow of water, and the latter continues so long as the vise is clamped. Control of the cutting lubricant can also be by hand, if preferred.

The Bridgeport Safety Emery Wheel Co., Bridgeport, Conn., will be glad to send you full information on request. Address them on your letterhead, using Coupon No. 50.

INCREASE PRODUCTION WITH FEDERAL PRESSES



No. 33 BACK GEARED

Capacity 26 tons
Large area ram face
Large bolster plate
Large opening thru back for bulky work

Designed and built especially for large or bulky light work and for progressive dies such as used in lamination.

All models of FEDERAL heavy duty presses are equipped with Timken bearings to increase efficiency and production at the lowest possible upkeep cost. Roller bearings in the flywheel are adjustable for wear, eliminating the need for expensive rebuilding and repairs after long use and preventing damage to the clutch and control mechanism. Non-repeat safety type clutch and tripping device, also standard equipment on FEDERAL models, guard against accidents to operators or dies should momentum carry the crankshaft beyond center.

**FEDERAL
PRESS CO.**
ELKHART, IND.

Send Coupon No. 68
for illustrated in-
formative circular

Chesterman Stainless Jointed Steel Rule

George Scherr Co., 128 Lafayette St., New York, offer a new combination jointed stainless steel rule and protractor which should appeal to engineers, draftsmen, shop men and others who do accurate layout work. In setting the blades of the scale to the desired angle a pair of dividers is first set to the corresponding chord on a scale engraved on one of the blades.



The blades are then opened until the divider points span the distance between two center dots engraved on the rule, one on each blade. The illustration shows the method of using the dividers to make this simple setting. For measuring angles, the operation is reversed. The chords cover all angles from 0 to 120 degrees, increasing by increments of one-half degree. A spring tension on the joint of the rule affords sufficient friction to hold the angular setting of the rule blades for scribing and layout work. The rule is graduated in $\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$ and $\frac{1}{2}$ divisions.

Write direct on your business letterhead to the Geo. Scherr Co., for further information.

Stanley Issues New Electric Tool Catalog

The Stanley Electric Tool Division, New Britain, Conn., announces a new No. 65 catalog, describing and illustrating the complete line of Stanley electric drills, grinders, hammers, hole saws, sanders, safety saws, screw drivers, metal cutting shears and tool accessories.



P

PROGRESSIVE

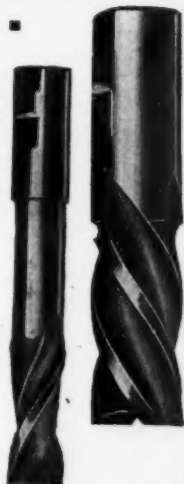
SHEAR CUT END MILLS

for every need . . .

There's a type, form and size of Shear Cut End Mill for every job—it's designed and made by End Mill Specialists—precision manufactured from the finest materials—and you can depend on it to give economical, accurate results and long-lasting satisfaction.

If you have any special End Mill problems, our facilities and years of experience are at your disposal, without obligation. Just send your blueprints to us.

Use Coupon No. 47 when you write for your copy of the Progressive catalog.



PROGRESSIVE TOOL & CUTTER CO.
FERNDALE, MICHIGAN

Douglas Aircraft Installs Gigantic Press

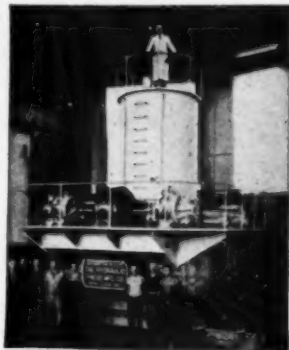
What is said to be the world's largest self-contained hydraulic press was recently installed by the Douglas Aircraft Co., Inc., Santa Monica, Cal.

The big press was built by the Hydraulic Press Mfg. Co., Mt. Gilead, Ohio, and has a pressure capacity of 5,000 tons. The press itself weighs 840,000 pounds and the oil supply reservoir on top contains enough oil to fill the crankcases of 2,000 automobiles. Maximum opening between platen and bed is approximately four feet.

The total pressing force of 10,000,000 pounds is created by a single hydraulic ram six feet in diameter, actuated by oil under a pressure of 2,500 pounds per square inch. Oil pressure is generated by a battery of four radial pumps of the variable reversible delivery type, direct driven by two 150 h.p. electric motors. Speed and direction of press movements are controlled by regulation of the volume and direction of the pump output, without intervening valves.

Douglas will make some 3,000 different aircraft parts, all of aluminum alloy, in the big press, with anticipated savings in production cost.

Further information pertaining to this and other H-P-M presses will be furnished by the manufacturers on request. Write them on your letterhead and mention **The BLUE BOOK**.

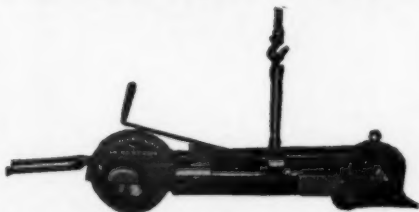


Ajax Flexible Coupling Co., Westfield, N. Y., illustrate and describe their line of couplings in a handsome new 16-page catalog. A request on your business letterhead, mentioning **The BLUE BOOK** will bring you a copy pronto.

MARSCHKE

Formerly Van Dorn, Black & Decker

HEAVY DUTY GRINDERS AND BUFFERS



In foundries, plating plants and other industries wherein grinding and polishing is done on a production basis, grinders and buffers are selected with the knowledge that *the best is the cheapest in the end.*

In such industries, experience teaches that quality—accounting for *dependable durability* of grinders and buffers—is by far the most important requirement.

That is why MARSCHKE GRINDERS and BUFFERS—formerly made by Van Dorn, Black & Decker—are so popular wherever there is need for continuous, hard service.

The best is the cheapest in the end.

VONNEGUT MOULDER CORP.
1805 Madison Avenue, Indianapolis, Ind.

A Catalog showing machines with 10" to 30" wheels and 1 to 25 H. P. motors will be sent promptly upon request.

New Stanley Electric Drills

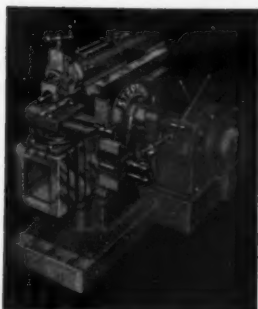
The compact design of the new 3/16 inch Stanley electric drills adapts them for close-quarter drilling in the aviation industry, coach and bus construction, furniture factories, radio, electrical and automobile plants. Only 2 3/4 inches in diameter, the new drills are available in three different speeds for fast drilling in metal, wood or other materials. The gears are of



nickel steel, specially heat treated. The housing is of a strong aluminum alloy and ball bearings are used throughout. No. 362 has "On" and "Off" switch in rear end bell. No. 362-H has pistol grip and fully enclosed double pole switch in handle. No. 462 is similar to 362 with 1/4 inch capacity. No. 462-H is similar to 362-H with 1/4 inch capacity. Write Stanley Electrical Tool Division, The Stanley Works, New Britain, Conn., for complete information, mentioning **The BLUE BOOK.**

POWERFUL MACHINES

for HEAVY WORK



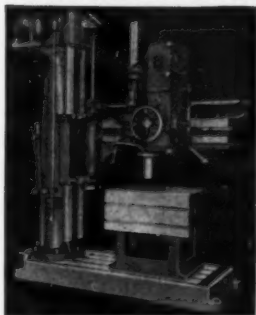
STEPTOE SHAPERS

Force feed continuous lubrication, heavy construction and Timken bearings throughout insure rigidity, accuracy and long life. Centralized controls are within easy reach of the operator at all times.

Instantaneous feed and speed changes may be made with fingertip control while the machine is running.

Send today for catalog No. 130.

WESTERN 12-SPEED RADIAL DRILL



Twelve geared spindle speeds of 40 to 2000 r. p. m. adapt this solidly - built, easily - controlled drill to small drilling and tapping jobs as well as to heavy-duty milling and spot-facing operations.

Simple, centralized controls within easy reach of the operator, ball bearings throughout, instantaneous speed and feed changes and easy swinging head make accuracy a commonplace.

Twin disc clutches, 6 geared feeds and elevating mechanism fully enclosed and running in oil contribute to easy, dependable operation.

Write today for your copy of the 12-page circular illustrating features of the Western drill that will save money in your plant.

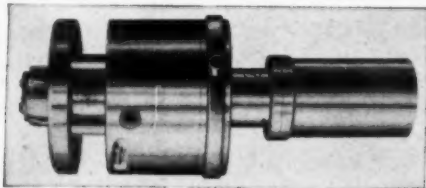
Western Machine Tool Works
HOLLAND, :-: :-: MICHIGAN

Landis 3ALM Receding Chaser Collapsible Tap

The new Landis 3ALM is a tap of the receding chaser type, offering features that are said to make for increased efficiency of performance—in the accuracy of threads it produces and in length of life of the chaser between grinds. Made of high carbon steel, all parts are heat treated and precision ground. All sliding surfaces are hardened.

The 3ALM taps are designed primarily for tapping couplings, etc., and may be applied to any machine employing a live spindle where the resetting action is done automatically. There is no manually operated model.

Internal mechanism is similar to that of the standard IM tap. A cross rail slide cam is employed to control the taper. It is possible to trip the tap at any position by adjusting a tripping bar so that it contacts the tripping button near the shank end of the tap.



A simple adjustment is provided for taper change and for taper correction. The tap may be used for any taper of thread ranging from 0, or straight threads, to $\frac{3}{4}$ inch taper per foot with changes by infinitesimal degrees. To alter the taper or adjust for a slight error a locking screw is released in the control collar and the taper indicator moved.

Another interesting feature is the method by which coolant is directed to the cutting edges of the chaser, promoting thread quality and life of the tool.

(Continued on Page 58)

Pullmore Clutches

Pullmore Multiple Disc Clutches have broad applications in machine tools, cranes, industrial trucks, printing, bookbinding, textile and similar automatic and semi-automatic machinery. They are used as main drive clutches carrying all the load, as auxiliary clutches controlling individual units; and in power take-off mechanisms to operate various devices. Pullmore Clutches engage smoothly; operate efficiently. They are



SINGLE PULLMORE

DOUBLE PULLMORE

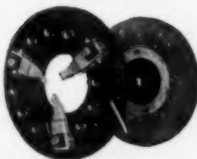


reliable, compact, durable—provide years of satisfactory service, even under heavy-duty operating conditions. Pullmore Clutches are made in single and double types, for operation in oil or dry, in capacities from 1 h.p. to 75 h.p. at 500 r.p.m.

SPRING-LOADED

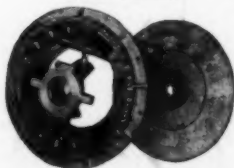
Rockford Clutches

Rockford Clutches are ideal for use in tractors, agricultural machinery, cranes, street sweepers, road building, well digging, marine, and other equipment—wherever clutch control is desired for gasoline or diesel engines.



Rockford Clutches are made in two types—Spring-Loaded, which operates like an automobile clutch; and Over-Center, which remains in or out of

OVER-CENTER



engagement until the position of the operating lever or pedal is changed. Both types are efficient, durable, compact, easy to adjust—have ample take-up for long periods of heavy-duty service. Rockford Over-Center and Spring-Loaded Clutches are made with single or double drive plates, for operation in oil or dry, in capacities up to 80 h.p. at 100 r.p.m.

Use Quickmail Coupon No. 53 to get complete information on Pullmore or Rockford Clutches

ROCKFORD DRILLING MACHINE DIVISION

Borg-Warner Corporation, 4110 Catherine Street, Rockford, Illinois
Pullmore Clutches sold by MORSE CHAIN CO., Ithaca, N. Y. Offices in principal cities

Coolant is admitted to the tap through a bronze yoke ring at the rear of the control collar into the hollow tripping ring, through the hollow tripping ring supports. Face plate of the tripping ring is perforated with a series of small holes so located that the entire volume of coolant is directed within the coupling.

Range of the 3ALM is from 2 to 4 inches inclusive and the same tap heads may be employed as with the standard 4LM receding chaser tap.

The 3ALM is fully enclosed, excluding chips and dirt which might cause excess wear of the working parts.

Write Landis Machine Co., Waynesboro, Pa., on your letterhead for complete information. Use Coupon No. 34.

New Ryerson Book on Certified Steels

As manufacturing standards improve and production speeds increase, the need for uniform high quality steel becomes more imperative. Continuous processes of production lines and automatic equipment demand uniformity.



Some years ago, Ryerson began planning and preparing to meet the more exacting needs of industry. A handsome new book, 11 x 15 inches explains in impressive pictures and text, the Ryerson methods of building up stocks of better steel in each classification, and preserving quality during handling, storage and shipping operations. It is as-

serted that this new plan features a degree of control never before attempted by any steel service company.

In addition, the book contains a digest of standard and special alloys—as well as a brief summary and description of other steel products plus suggestions for the heat treater.

Copies may be obtained by addressing Joseph T. Ryerson & Son, Inc., Dept. P., Lock Box 8000-A, Chicago, Ill. In writing, please use your letterhead and mention The BLUE BOOK.



A Style and Size
for Every Production Grinding,
Polishing, or
Sanding Job!

Mall
TRADE MARK

FLEXIBLE SHAFT EQUIPMENT

These efficient tools are cutting costs and stepping up production in hundreds of industries. They deliver the maximum horsepower to the working tool with the minimum of weight in the operator's hands. Each unit is designed with heavy duty ball bearing motors and ball bearing hand spindles.

If quality-improving, labor-saving tools interest you, it will pay you to investigate MALL equipment for your 1938 production program. Our engineers are ready to assist you in selecting the right type of tool for your work.

Send Quickmail Coupon No. 46 for information.

MALL TOOL COMPANY

7742 South Chicago Avenue
Chicago, Illinois

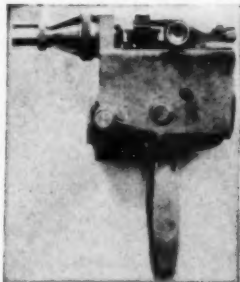
Offices and Distributors in all Principal Cities

Majestic MetaLayer

The Metals Coating Company of America, 495 N. Third St., Philadelphia, Pa., offer a recently developed MetaLayer model which it is asserted will deposit approximately 100% more metal in a given time with less oxygen and acetylene consumption. The mechanical problem of feeding heavier wires at greater speeds required a new departure in the method of gearing and increased bearings throughout.

It is said that with the new design of turbine, only a small increase in the pressure and volume of compressed air is required over tools of lower capacity. The train of gearing from turbine to final feed roll comprises two hardened worms, one bronze and one fiber gear of special composition, and the entire assembly is enclosed in one compartment containing grease for lubrication.

The feed rolls are conveniently engaged by an adjustable latch bolt operated with a single motion, providing speedy engagement, sensitive control and quick release. The gun may be lit and the flame adjusted with or without the wire feeding. No moving parts are exposed. One movement of the valve handle makes the final adjustment of oxygen, acetylene and compressed air.



The tool can be supplied with a standard handle for manual operation as shown, or adjustable tool post holder for mechanical operation. The best practice in the oxy-acetylene industry has been incorporated in the mixing device of this tool, assuring safe operation with an ample supply of oxygen and acetylene at a pressure below 15 pounds per square inch in accordance with the Underwriters Rulings. In spite of the increased rate of wire melted and atomized, the final deposit approximates the fine grain obtained with tools of smaller capacity.



Phillips Recessed Head Screws

Send Quickmail Coupon No. 16 for catalog No. 9—a reference manual of screw driver bits—and catalog No. 8 covering Apex Production Tools for Drilling, Tapping, Reaming, Boring, Stud and Nut Setting and Universal Joints.

APEX

SCREW DRIVERS AND BITS

for PHILLIPS

Recessed Head Screws
(Pat. No. 2046840)

**and all kinds of
SLOTTED
HEAD SCREWS**

APEX-PHILLIPS Hand Screw Drivers and APEX-PHILLIPS Bits for Electric and Air Tools—for all types and sizes of Phillips Recessed Head Screws—are quality tools that will stand the hardest kind of service. Made of a special shock resisting steel combining the qualities of extreme toughness, wear resistance and hardness. Prompt shipment.

Apex Screw Driver Bits for Phillips Recessed Head or Slotted Head Screws will reduce your screw driving costs. Many of the largest users of screws have proved this.

THE APEX MACHINE & TOOL CO.
DAYTON, OHIO

A New Low Speed Drill by Black & Decker

Stainless steel, Monel and other very hard metals in this increasingly popular group involve problems of burned bits and production delays. This new $\frac{1}{4}$ inch low speed ball bearing electric drill has been developed by Black & Decker for this particular field.

Offering a standard spindle speed of 450 r.p.m., a powerful universal motor operating through a triple reduction gear train, the drill is said to provide ample torque for the toughest steel-drilling applications. Armature and spindle are mounted on ball bearings. The unit is equipped with a "Portomatic" keyless chuck and patented gear locking pin to facilitate quick changes of drill bits.



Capacity in steel is stated to be $\frac{1}{4}$ inch. In hardwood, $\frac{1}{2}$ inch. Standard speed, no load, is 450 r.p.m. and full load, 285 r.p.m. Net weight of the unit is 6 $\frac{1}{4}$ lbs. and shipping weight 7 $\frac{3}{4}$ lbs.

It is furnished complete with 3-conductor cable and plug; "Portomatic" keyless chuck and gear locking pin; instant release trigger switch with locking pin and universal motor operating on A. C. or D. C. Standard voltage is 110—also available for 32, 220 or 250 volts. Can also be furnished for special speeds of 350 or 600 r.p.m. and a bench drill stand is available.

For complete information, address the Black & Decker Mfg. Co., Towson, Md., on your business letterhead. Use Quickmail Coupon No. 33 for prompt action.



"That's Why We Should Use 'MODERN' PUSHERS"

Compare Modern Pushers point by point with any other pushers that you might buy. Compare them in actual service—and let your own production records be your guide. Then you will understand why twice as many Modern Pushers are used as all others combined!

Modern Pushers are unequalled for feeding action, easy adjustment and durability. Unusually long bearing surfaces assure a positive non-slipping feed. They can be adjusted to size without special tools. They are made of specially heat treated high grade alloy steel. And any Modern Pusher will handle either round and hex or round and square stock—reducing tool inventory.

You'll find the same efficiency and economy in all Modern Products—a complete line of all perishable parts and tools for all types of screw machines. Send Quickmail Coupon 28 for Catalog 33.

MODERN COLLET & MACHINE CO.
403 SALLIOTTE ST. ECORSE, MICH.

Doall Users Accomplishment Contest

A prize contest to acquaint manufacturers and metal fabricators with the savings of time and material made possible by contour sawing and filing by the Doall method is announced by Continental Machine Specialties, Inc. Prizes will be awarded to the persons performing the most unusual jobs of contour machining.

First prize is \$100, second prize \$50, with other prizes of cash and merchandise.

The contest is open to any individual, although it is believed that present users of Doall equipment will be better able to provide the facts as to savings realized.

Full details of rules, prizes, judging and time limits of the contest may be obtained by writing to the home office of Continental Machine Specialties, Inc., at 1301 S. Washington Ave., Minneapolis, Minn.

A Trio of New Niagara Bulletins

Three attractive and interesting new folders issued by Niagara Machine & Tool Works, 637 Northland Ave., Buffalo, N. Y., will promote better acquaintance with the products of this Company.

Mechanical details of the 14-point engagement sleeve clutch are presented clearly in pictures and text in one of the bulletins. This clutch is said to be one of the outstanding features of Niagara Presses and Shears and has earned popularity because it permits instant engagement and maximum strokes per minute.

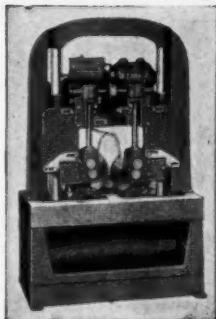
Bulletin "H" introduces the Niagara power squaring shears series "H", with large scale illustrations, a resume of the attractive features and specifications.

Bulletin 58-G presents the Niagara line of inclinable presses with the who, what and why of them—illustrations of the different models and mechanical details and very complete specifications.

The manufacturers will be glad to send you copies if you ask for them on your business letterhead and mention **The BLUE BOOK**.

A New Step Forward in
HIGH SPEED PRODUCTION SAWING

WELLS **Duplex Rotary** **Cut-Off Saw**



HERE'S a saw that's built to cut your present sawing cost 50%. Entirely new in design and principle, it has proved, under extensive research and test, the answer to high speed work. Twin high-speed circular saws mounted on a carriage which slides on vertical posts, bite into the material on each side. This principle guarantees a three fold savings. (1) Permits two cutting edges working in the material at the same time, instead of the conventional one, and the cutting time is in direct proportion. (2) Enables use of much thinner saws which reduces material waste cost to a minimum. (3) Allows use of much smaller blades—materially reducing replacement costs. These production and cost saving features combined with a controlled hydraulic feed which guarantees accurate cut off to any length and to suit any material requirements, is your answer to perfect High Speed Production Sawing—The material savings cost alone, pays for the equipment cost in a short time.

Send Quickmail Coupon No. 31 for complete information.

● *Saw it the WELLS WAY* ●

WELLS MFG. CORP. Three Rivers, Michigan

Garrison Offers A New Gear Chuck

Accurate chucking assemblies of various kinds trued to the pitch line of the teeth of the applied gear so that the final finishing operations performed on the assembly will be true and concentric is the object of the new precision, pitch line control gear chuck developed by the Garrison Machine Works, Inc., Dayton, Ohio.

A common example of the type of assembly which may be finished to advantage by the new method in this new chuck is found in automobile engine flywheel assemblies consisting of a cast iron flywheel with an applied heat-treated starter ring gear. The application is also suited to heavy machinery, tractor building and other fields where hardened gears are pressed on cast or soft inserts, flanges and the like. Details of the new chuck are shown in the accompanying illustration.

The makers point out that in the past, the standard practice has been to completely finish the ring gear and then press it on the flywheel, before inserting the flange or hub, which had



also been finished completely. It was assumed that as these two component parts of the assembly were perfect, the assembly itself would be perfect. Under the best conditions, the manufacturers assert it is not possible to make perfect ring gears and inserts or flywheels. The ring gears necessarily are thin and subject to cutting errors and there is distortion in heat treating which might not occur in gears with a solid center section. The gears also change at times when stretched in the process of pressing on flywheel or insert. Regardless of the care exercised there are bound to be errors in machining the flywheel or in-

(Continued on Page 68)

It's the **PRINCIPLE** that insures **ABSOLUTE** **ACCURACY**



STANDARD'S DIAL BORE GAGE

is designed to measure diametrically through the center of the bore, which is the recognized principle for correct measuring.

Two centralizing plungers, one on either side of the live gaging member automatically locate gaging points true with centerline of bore.

UTILITY—Developed to meet the demand for accurate checking of bore dimensions both in quantity production and in individual pieces.

ADAPTABILITY—Unique construction enables measurements to be made within one quarter of an inch from bottom of blind bores—applicable to holes with obstructions such as shoulders, webs, undercuts, etc. Extensions are available for deep bores.

WIDE RANGE—of adjustment—only seven gages are required to cover a range from 1" to 12½".

QUICK PRECISION—Setting requires but a few moments. The Dial Indicator is graduated in .0001" and enables operator to estimate within .000025".

*"For better gaging
come to Standard"*



*Quickmail Coupon No. 38 will
bring your free copy of the new
catalog covering the complete
line of Standard Production Gages.*

STANDARD GAGE CO., INC.
POUGHKEEPSIE • NEW YORK

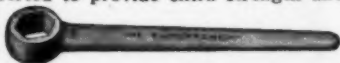
sert. Since the component parts of the assemblies are commercially perfect within the closest tolerances feasible, the only solution seems to be an operation that will "average-out" the errors existing in the assemblies themselves.

This is accomplished by chucking the complete assembly by locating from the teeth of the gear and finishing some major control surface such as the crankshaft flange seat in the case of automobile engine flywheels. It is also possible to finish machine other parts and in these cases the chuck is probably mounted on a lathe. It may be mounted on a drill press and a piloted tool used if only the bore or the crankshaft seat is to be finished by reaming, fly cutting, etc. The gear is located in the chuck by chuck members spaced at intervals around the body. The chucking principle is such that the assembly is located in a manner approximating actual use if one considers any of the chuck members as the pinion or gear mating with the applied gear of the flywheel when it is in actual service.

The makers summarize by saying that in effect, the assembly is finished "in place" which assures that it will run quietly, transmit power smoothly and uniformly and be free from excessive wear.

Williams' Heavy Pattern Hex-Box Wrenches

Designed for hard service, these new heavy pattern wrenches are asserted to provide extra strength and full bearing—the heads being approximately the same thickness as the nuts they serve. The comparatively thin walls aid in close quarters. Openings range from 1¼ to 3¾ inches. Drop forged in 2 lines—carbon steel wrenches and chrome molybdenum Superwrenches.



The carbon wrenches are finished in black enamel (baked on) with bright heads. Superwrenches are chrome plated with faces of heads buffed bright.

Complete information will be supplied by the makers, J. H. Williams & Co., 75 Spring St., New York City.

EACH HEAD CAN TURN TWO DIFFERENT-SIZED NUTS

This is a great saving over Ratchet Wrenches that turn only one nut in each head, as it means fewer parts to keep on hand.

The FAVORITE Reversible Ratchet Wrench

Means greater efficiency and speed in nut turning, as you can use one side of head for one size nut, and by turning it over you can use the other side for a different-sized nut.

This head turns
1" and 1 1/8"
hexagon nuts
U. S. Standard



TWO WRENCHES IN ONE

Reverse motion instantaneous by simply turning pawl. Opening clear through head. Can be used in narrow places. Works on a straight-ahead ratchet motion, and head does not leave nut until operation is completed.

*Send Quickmail Coupon No. 35
for full particulars.*

GREENE, TWEED & CO.
109 Duane St., New York, N.Y.

A Dremel Moto-Tool No. 2

Dremel Mfg. Co., Racine, Wis., announce a new and larger Moto-Tool, Model No. 2—also a universal stand for holding the tool and the shaping table.



The new tool weighs only 13 ounces and is said to deliver a speed of about 27,000 r.p.m. It is designed for use on almost any materials in industry, shop, tool room, laboratory, home and school—wherever continuous service is required, particularly for operations such as grinding, routing, drilling, polishing, etc. Moto-Tool No. 2 is supplied complete with universal chuck, one $\frac{1}{8}$ inch collet and one B-52 wheel point.

The chuck is of the wrenchless universal twin

(Continued on Page 72)

CAM CUTTING

FOR B & S AUTOMATIC SCREW MACHINES



PRICES ON HARDENED CAMS CUT TO CUSTOMER'S LAYOUT

	No. 00	No. 0	No. 2	No. 4	No. 6
Set of 3	\$6.20	7.65	9.35	19.25	24.35
Set of 2 (Lead & Cross Slide)	5.05	6.15	7.45	14.70	19.25
1 Cross Slide	2.10	2.50	2.90	5.35	6.05
1 Lead Cam	3.20	3.95	5.00	10.05	14.00
Set of 4 (1 lead 3 Cross Slides)	8.10	9.90	11.90	-----	-----

IF LAYOUT IS TO BE FURNISHED BY US, THERE
IS AN ADDITIONAL CHARGE OF:

No. 00	-----	\$ 4.00
No. 0	-----	5.00
No. 2	-----	6.00
No. 4	-----	8.00
No. 6	-----	10.00

48 HOUR SERVICE ON COMPLETED CAMS
24 HOUR SERVICE ON CAMS NOT HARDENED

Send Coupon No. 69 for BANNER Catalog

BANNER MANUFACTURING CO.
1873 Clybourn Ave., CHICAGO, ILL.

cone collet type. The chuck lock pin will be found convenient for preventing chuck from turning when interchanging tools. A finger grip, integral with the body, is convenient for holding the unit close to the chuck.

Dimensions are 1-11/16 diameter by 6¾ inches long. Current consumption is stated to be about 60 watts. The tool can also be supplied for operation on higher voltage at no extra cost.

The new stand leaves both hands free to manipulate the jobs over the wheel. Tool may be tipped to any angle by means of the ball joint which is secured with a wing nut.

The shaping table is used for routing and grinding flat pieces to any desired shape by merely guiding them over the table. The table may also be used without the stand for grinding or routing to a predetermined depth. Finger grips are provided for guiding the table over the work.

Write direct to the makers for a copy of catalog No. 20 giving complete information on the tool and its many uses.

New Set Screws "Stay Put"

To solve the problem of making set screws "stay put," the Standard Pressed Steel Co., Jenkintown, Pennsylvania, offer a new type of self-locking set screw called "Unbrako."

Their method of knurling the two top threads, as shown in the illustration, raises sharp prongs around the edge of the thread which dig into the threads of the tapped hole when the "Unbrako" is being tightened up, thus preventing it from working loose.

A copy of bulletin 515, describing the new set screw and illustrating its construction with cut-away views, will be sent to you on request.



DRILL JIG



BUSHINGS

ASA

Standardized



Prompt delivery from stock on over 10,900 standard items — over 6700 ACME Standard — over 4200 A. S. A. Standard — all completely finished ready for use. *Special sizes made to order.*



Made in our new plant by the most exacting and scientific methods — insuring accurate fit plus long wear — concentric within .0003" full indicator reading.



Types shown at left, top to bottom, are: plain stationary press fit, type 'P'; shouldered stationary press fit, type 'S'; removable slip, type 'R'.

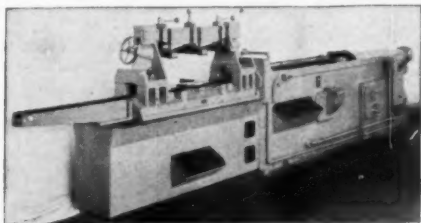
Send Quickmail Coupon No. 39 for bulletin containing complete data and low prices. Satisfactory service guaranteed.

ACME
INDUSTRIAL CO.
210 N. LAFLIN ST.,
CHICAGO, ILL.

Pull-Broaching Cylinder Blocks

Bearing seats in a well-known V-type engine are now being broached with the equipment shown. The machine is a standard Colonial universal broaching machine with fixtures built up on a separate base, bolted to the face plate of the machine.

The machine is so designed that the cylinder blocks may be slipped into place directly from the roller conveyor on which they travel, without any handling with chain hoists, etc. The blocks are located over dowel pins and are clamped from the end and top.



Broaching is completely automatic, the broach being pulled through the block with a 60-inch travel of the broach heads. The ram has a capacity of 10 tons, about 1/32 inch of stock being removed to completely finish the bearing seats to close tolerances.

The machine is provided with variable speed adjustment and high speed return, handling a production of about 60 blocks per hour including loading and unloading time. Note the extension support for the broach bar on the fixture base.

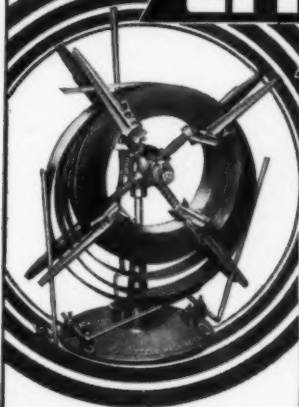
A similar machine is said to be used in another plant for roughing and finishing the bearing seats in one operation.

For further information concerning this or other broaching operations and equipment address Colonial Broach Co., 145 Jos. Campau St., Detroit, Mich.

**INCREASED
PRODUCTION**

**RESULTS
FROM USING**

LITTELL



**AUTOMATIC
CENTERING
REELS**

Three Sizes

Plain or motor driven

No. 3 for 300-lb.
coils—

No. 5 for 600-lb.
coils—

No. 10 for 1000-lb.
coils.

Ask for Circular

STEP up production with the Littell Automatic Centering Reel. With it one man can load and center heavy coils within a few minutes. Ball bearings permit easy turning of centered coils and increase output with either hand or automatic feeding.

Other Littell Products include Automatic Roll Feeds, also Punch Press Air Valves and Universal Air Nozzles.

*Use Quickmail Coupon No. 41 in
requesting Littell circulars.*

F.J. LITTELL MACHINE CO.

4153 Ravenswood Ave., CHICAGO, ILL.

Servicing Lighting Fixtures From The Floor

The dirt film on lighting fixtures is said to absorb from 20 to 60 percent of the illumination which emphasizes the advantage of frequent cleaning. In many instances the cleaning operation is not so easily performed.

This was the underlying reason for development of the Benjamin "Turnlox" hood construction. It is asserted that this new equipment permits easy removal of reflector, globe and lamp from the socket in one quick 90-degree twist. The "Reflector Changer" eliminates the ladder hazard and is a light-weight ingenious shaft. The engaging device permits the operator standing on the floor to remove and replace the fixtures at heights up to 18 feet.

Electrical and mechanical connections are made with the socket through a substantial three point self-centering bayonet lock. Automatic polarizing contacts are a feature of this design. Socket hoods which receive the detachable reflector units are available in ceiling mount and pendant types. The socket hoods are simply wired and fitted with porcelain terminal bases which fit any medium size or mogul base "Turnlox" reflector assembly. A complete line of reflectors of heavy, seamless, porcelain enameled steel is available with the floor-service construction feature. Available lamp holder assemblies include pull chain, shock absorbing and self-locking types.

Write to the Benjamin Electric Co., DesPlaines, Ill., for complete information. Use your letterhead and Coupon No. 65.



ROSS *Air Control* VALVES

A SIZE AND TYPE
FOR EVERY
OPERATION

OPEN OR CLOSE
Fast as Lightning

NO VALVE known to engineering science can be opened or closed with greater speed than the poppet type valve. No valve performs its function with less friction and wear on the working parts. Ross poppet type, air control valves reduce operating efforts to a minimum, giving instant, lightning-like action.

Valve seats of synthetic, oil-resistant rubber assure perfect seal—no leakage—long life. Seal not affected by frictional wear. All ports on one face offer important mounting advantages and simplifies installation. Short throw makes Ross valves ideally suited for mechanical actuated equipment.

Send Coupon No. 15 for Catalog No. 37

ROSS OPERATING VALVE CO.
6490 Epworth Boulevard
DETROIT, MICH.

THE BRIDLE FOR AIR HORSEPOWER



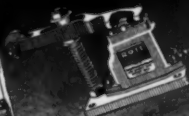
FOOT
CONTROL



FOOT
CONTROL



SOLENOID
CONTROL



MECHANICAL
CONTROL

Toledo Offers A Special Automatic Feed Press

The Toledo Machine & Tool Co., division of E. W. Bliss Co., 1420 Hastings St., Toledo, O., has announced a new and improved No. 79½ open back press on fixed legs.

A one-piece semi-steel casting comprises the frame, and a 15 h.p., 1200 r.p.m. motor is utilized. Drive-shaft and flywheel are both mounted on Timken roller bearings while the frame and connection bearings are bronze bushed.

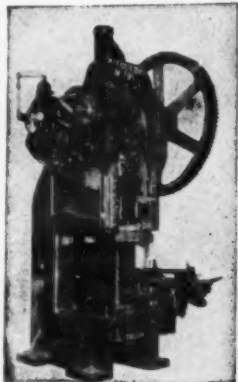
Safety is assured by the electric push button control which requires the operator to keep both hands on palm buttons until completion of the working portion of the stroke. Other interesting features include an anti-repeat mechanism, an air brake for stopping the flywheel, an air counter-balanced slide and a crossbar knockout.

Single roll feed is provided with a seven-roll power driven straightener to afford an automatic method of feeding the stock from 0 to 12 inches. The feed is mounted on the bolster and the level at which the rolls operate may be adjusted up or down to suit the height of the dies.

Electrical protective switches may be incorporated in the dies or on the feeds and connected in series with the stop button to halt the press should a jam or other mishap occur in the feed.

The flywheel type multiple disc friction clutch is of the new fast-acting pneumatic type. It is asserted that elimination of the link action of older types of clutches has done away with sensitivity to wear or to heating, and the direct action feature of the new

(Continued on Page 80)





SHORT - MEDIUM - LONG

★ ★ SCULLY-JONES Turret Tool Holders,
Sleeve type and Extension type are designed
for use on Turret Lathes and Screw Machines.



*Send Quickmail Coupon No. 40 for a catalog
of Scully-Jones equipment*

SCULLY-JONES & COMPANY

1905 SOUTH ROCKWELL STREET

CHICAGO, ILLINOIS

pneumatic clutch is therefore said to be an obvious advantage.

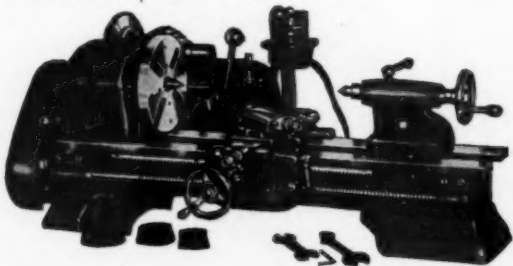
Some of the important dimensions are:—12 inch stroke; 3 inch adjustment of stroke; 20 inches bed to slide, stroke down, adjustment up; bed area 28 inches by 41 inches front to back by right to left; 21½ between gibs and the capped and flanged slide has an area of 24x28 inches.

Full information may be obtained by writing the makers on your business letterhead, mentioning The BLUE BOOK.

Atlas Presents New Small Precision Lathe

A late development for small-part machining is a completely new back-geared screw-cutting lathe announced by Atlas Press Co., Kalamazoo, Mich.

The new lathe swings diameters up to 6 inches, and is available in two bed lengths with 12 or 18 inches capacity between centers.



It is said that features of larger machine tools have been scaled down for accuracy and efficiency on small work. The modern construction details of the new Atlas units include: reversible power feeds for carriage; complete V-belt drive; Timken roller spindle bearings; integral countershaft; 16 speeds; and careful provision for maintaining permanent accuracy. Thread-cutting range is 8 to 96 threads per inch, right or left hand.

Complete description and specifications are given in Atlas general catalog No. 28, which will be sent free on request. Write for it on your letterhead and please mention The BLUE BOOK.



**Flexible Shaft
Equipment**

FOR PRODUCTION WORK

Model No. 40 — 1 H. P.

3 SPEED

V-BELT DRIVE 900-1800-3600



PRICE
COMPLETE
WITH 6"
GRINDING
WHEEL and
WHEEL GUARD

\$138

**FOR SNAGGING CASTINGS, GRINDING WELDS, POLISHING,
SANDING, WIRE BRUSHING, etc.**

Send Quickmail Coupon No. 19 for Catalog of the complete WYCO line.

WYZENBEEK & STAFF, INC.

642 WASHINGTON BLVD.,

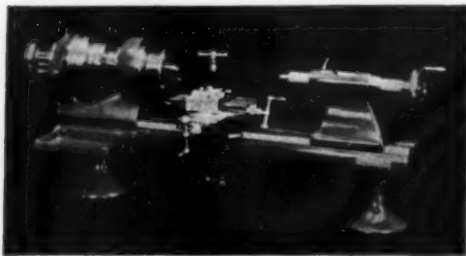
CHICAGO, ILL.

New Departure Issues Booklet

Under the title of "Sealed", a new 20-page booklet explains the principles involved in the N-D-Seal bearing and applications where it is needed. Numerous case histories are cited and illustrated in which these self-sealed bearings are said to have been used with outstanding success. In short, it is a review of accomplishments of this lubricated-for-life ball bearing after ten years, during which time 10 million are said to have been placed in successful use. If interested, write on your business letter head to New Departure, Division General Motors Corp., Bristol, Conn., for a copy of this booklet.

A New Open Cone Style Hardinge Bench Precision Lathe

Hardinge Brothers, Inc., Elmira, N. Y., in presenting this latest addition to their line, reiterate that accuracy and speed are essential attributes of a precision bench speed lathe. Heretofore, obtaining accuracy with plain bearings has meant close fit of the spindle which in turn puts limitations on the speed.



Embodying the Hardinge preloaded spindle construction in the new lathe, it is asserted, provides the extreme accuracy and permits the high spindle speeds required.

(Continued on Page 84)

• **AGAIN** •

UNBRAKO

**steps ahead
with a New Idea!**

Heretofore there has never been a positive way of locking a Set Screw; yet if it works loose there's no telling what may happen.

We licked the problem by simply knurling the two top threads of the "UNBRAKO", as shown.

This knurling raises sharp prongs all around the edge of the thread which dig right into the threads of the tapped hole when the "UNBRAKO" is being tightened up, so it can't possibly work loose.

Over 2,000,000 already have been bought, used and proved satisfactory.

Send for Free Samples.

This time it's

UNBRAKO

**SELF LOCKING
HOLLOW SET SCREW**



Fig. 1564

Pat. Applied For

STANDARD PRESSED STEEL CO.

BRANCHES

BOSTON
DETROIT
INDIANAPOLIS

JENKINTOWN, PENNA.

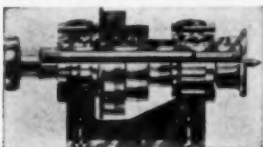
Box 559

BRANCHES

CHICAGO
ST. LOUIS
SAN FRANCISCO

The bed and tailstock of the new lathe are of a new design to match the rugged construction of the headstock.

The center distance, ways of the bed and spindle dimensions of the new lathe are in keeping with Hardinge standards to permit interchangeability of collets and attachments with the other types of Hardinge precision bench lathes now in use.



The spindle is hardened and ground, internally and externally, and is of high grade ball bearing steel. With the ball bearing construction, the spindle is mounted in ro-

tating members to eliminate wear on the spindle—a feature that is said to be unusual for a bench lathe.

The spindle cone pulley is provided with four holes for locking and 60 holes for indexing. Spindle has the Hardinge patent taper nose—threaded nose spindle furnished on application.

Summarizing, the new lathe is said to provide proper cutting speeds for the range from smallest size to capacity—to permit perfect finish without polishing—to allow the use of tungsten carbide and diamond tools.

Address the manufacturers on your letterhead for a copy of Bulletin "OB" and please mention The BLUE BOOK.

A New Cushman Chuck Catalog

Modern chucking practice is covered very comprehensively in a handsome new 100-page catalog issued by The Cushman Chuck Co., Hartford, Conn. A new and particularly important feature is the inclusion of large scale blueprints and full dimension data for all chucks and component parts, which should be especially helpful to design engineers and engineering departments. The catalog reflects a vast amount of study and careful preparation and is certainly a credit to the Cushman Company. Write for a copy on your business letterhead, mentioning The Blue Book.

***For the First Time! Vacuum Cleaning
Made Applicable to All Plant Cleaning
Requirements at Low Cost With***



Breuer's Ball Bearing

TORNADO

**Portable Industrial
Vacuum Cleaner**

This new machine is designed to solve all industrial cleaning problems without the expense of installing a stationary plant or using so-called portable cleaners which are too heavy and expensive for average plant applications.

TREMENDOUS POWER

1 H. P. Motor—46 $\frac{1}{4}$ Waterlift

Do not confuse the TORNADO with light-duty cleaning machines. Model 112 combines light weight (only 40 pounds) with tremendous cleaning power (1 H. P. C. E. ball bearing Motor—46 $\frac{1}{4}$ waterlift). Patented principle of separating fine dust from refuse and depositing heavy dirt in tank makes this cleaner as applicable to heavy duty work as the largest machines. Sturdy construction insures long life and low yearly cost.

Has plenty of power and capacity to handle dust, dirt, sand, sawdust, metal scraps, filings, etc. Attachments available for cleaning boillertubes, ovens, machinery, walls, floors, pipes, etc. Motor unit can be quickly removed for blowing dust from motors, etc. The handiest heavy-duty, low cost, time and labor saving unit ever built.

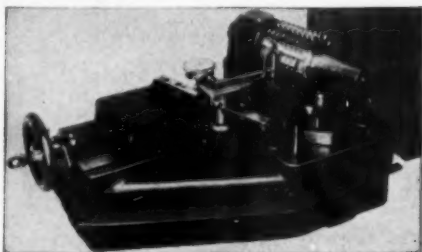
We prove TORNADO advantages right in your plant without obligation. Send Quickmail Coupon No. 30 for details of trial offer and further information or write.

BREUER ELECTRIC MFG. CO.
842 Blackhawk Street, Chicago, Illinois

Michigan Tool Offers New Hob Contour Checker

An improved design of hob contour checker for every-day tool room and gear laboratory use is offered by the Michigan Tool Co.

Designed for checking hobs in locating possible sources of error in gear analysis work, it is said the instrument reveals deviations from true pressure angle down to .0001 in.



A convenient feature of the check is that it does not require interchangeable angle blocks for checking hobs of different pressure angles. To take care of this, a sine-bar setting is provided on the checker.

The indicator is provided with a multiplication of five to one, so that a movement of the contact finger of .0002 in., will register a travel normally representing .001 on the indicator. It is said this enables registering even such depressions and elevations as are caused by rough grinding.

The checker is of sturdy construction and attractive design. A sheet metal cover is provided for protection against dust when not in use.

For further information address Michigan Tool Co., 145 Jos. Campau St., Detroit, Mich., preferably on your letterhead, and please mention The BLUE BOOK.

WITTEK

AUTOMATIC

Roll Feeds

For Every Size and Make of Punch Press

**FAST
ACCURATE
AUTOMATIC
SAFE**



Increases Punch Press Production

Keeps production at the same steady high level day in and day out—no fatigue or other human "let down". Easily installed on any press without alteration. Feeds automatically any stock from coils in lengths from 0" to 24" per press stroke. Saves time, operating costs and dies—reduces scrap to a minimum. A type for every requirement—Single Roll, Double Roll, and Compound with straightener.

Wittek Reel Stands

Automatic, Self - Centering, Ball - Bearing. Adjustable to any height, balanced at any angle, 500 lb. capacity. Prompt deliveries from stock. Also made in four other models.

Write Today for Bulletin "HF" giving complete details and specifications of WITTEK Automatic Roll Feeds and Reel Stands.

USE QUICKMAIL COUPON No. 25



WITTEK MANUFACTURING COMPANY

4305 9 W. 24TH PLACE

CHICAGO ILL.

Wardwell Heavy Duty Band Saw Hammer Setter HM-25

Fully automatic in operation, the HM-25 has a rigid one-piece frame casting and bearings of generous size.

The hammer arms are connected, one on each side, at lower end of the frame, with a double cam between the two lever hammer arms. As the cam rotates, it spreads the arms apart, and as the cam rider comes to a drop in the cam, the arms come together simultaneously, one on each side, striking the teeth against the anvil with a sharp, quick blow, giving the teeth an exact, uniform set. The setting hammers are adjustable for hard or light blows.

The setting hammers are also adjustable lengthwise of the saw, to take care of the different spacing of teeth. As two teeth are set simultaneously, two teeth are fed to the setting position at a time, thus setting four teeth for each revolution of the cam shaft.

The vise jaws are made of tool steel, hardened and ground. One jaw is adjustable to suit any gauge of saw. The saw is quickly inserted or removed, by means of a lever which opens one jaw.

The feed pawl lever is pivoted on a half inch shaft, having a bearing $4\frac{1}{2}$ inches long. The feed finger is raised out of the way when inserting a saw into the machine. The saw support runs full length of vise jaws and is adjustable for different widths of saw blades, by means of a screw operated from the top of the machine. The top guides are adjustable for height.

For butcher hand blades the saw rest is also arranged with an automatic stop. When the saw blade is fed through the machine, it will automatically stop when the saw is set within one inch from the end.

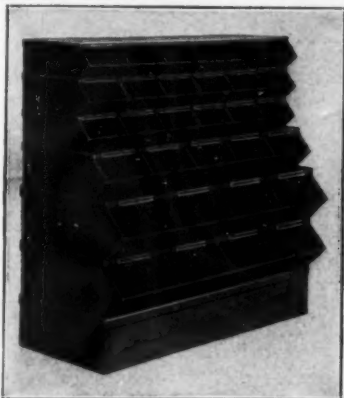
The machine can also be arranged with the saw rest supported on springs so that hand butcher blades

(Continued on Page 90)

TAKE YOUR STOCKROOM TO THE JOB

Set up a temporary STACKBIN stockroom anywhere in your plant. Save workmen's footsteps—keep stock always handy to the job. Avoid time wasted between the job and your permanent stockroom.

For storage they are compact, space-saving. Interlocking units of multiple bins securely nest together to make a temporary or permanent stockroom of maximum capacity on minimum floor space. Welded construction of heavy gauge steel, with turned edges and full-view hoppers, makes STACKBIN Sections durable, safe, efficient — profitable.



*Send Coupon for full information
on sizes, styles and uses.*

**STACKBIN
CORP.**



Patented

PROVIDENCE, RHODE ISLAND

Stackbin Corp.,
55 Troy St.
Providence, R. I.

Without obligation, send
literature on STACKBINS.

Name _____

Firm _____

Address _____

with pins may be fed through the machine, which are wider or narrower than the saw just preceding or following. In such cases, the machine is equipped with a ratchet wheel with teeth cut to match the teeth in the saw blade, as a stop or guide, engaging in the gullets of the teeth from above, with the saw rest supporting the backs of the blades, balanced by a spring so that the saws are always held automatically to the same height in the machine, the springs operating to raise the rest supporting the backs of the blades until the teeth engage the teeth in the guide or stop, which is set to keep the saw at the proper height. Thus, it is unnecessary to readjust the saw rest for changes in widths of the saws, all widths being maintained automatically at the proper height.

When inserting or removing the saw blade, one lever is used to open the vise jaw and lower the saw rest. This is a convenience where it is desired to feed a quantity of blades through the machine rapidly without making adjustments for varying widths.

Address the Wardwell Mfg. Co., 3167 Fulton Road, Cleveland, Ohio, for complete information on this machine and please mention The BLUE BOOK.

Dreis & Krump Issue New Catalog

A new 64-page die catalog is announced by Dreis & Krump Mfg. Co., 7440 S. Loomis Blvd., Chicago, Ill. In a very complete and comprehensive way, the new book covers forming dies used on press type brakes, showing 200 different types of forming press dies. In addition, a considerable amount of valuable information is included for users of press brakes and dies. Besides the many illustrations of practical dies, information is given on the pressures required to make bends, capacities of press brakes, tonnage required for panching, etc.

Address the company for your free copy of the new catalog, preferably on your letterhead, and please mention The BLUE BOOK.

HI-DUTY PNEUMATIC MARKING MACHINE

This is a light, general purpose hand marking machine for use on flats, rounds and irregular surfaces, which is supplemented with an air cylinder to take the place of the foot pedal for applying pressure to



MODEL 25

raise the work table to the lettering tool. Air from the shop line is used and the four way foot valve assures fast operation. Machine uses solid flat or round dies, as well as adjustable type, in flat or knurl type holder.

Advanced business methods demand improved records of metal fabrications and this machine makes marking operations quick and simple. Part numbers — order numbers — manufacturer's name and other important data marked on your products will mean permanent records, to last the life of the part. This general purpose marking machine will help you.

**Send Coupon No. 70 for complete catalog of our full line
of Marking Tools, Machinery and Equipment.**

Designed and Built By

GEO. T. SCHMIDT, INC.

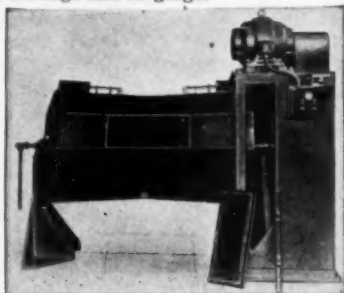
1802 Belle Plaine Avenue,

Chicago, Illinois

Builders of Marking Equipment since 1895.

A New Burnishing Barrel

At an Eastern hardware specialty plant, production schedules were recently stepped-up on roller skates, making it necessary to modernize the method of cleaning skate parts. Among the improvements was a new type of burnishing barrel designed by N. Ransohoff, Inc., Cincinnati, O., the design following closely the Ideal Cascade Mill that is widely used in cleaning castings and forgings.



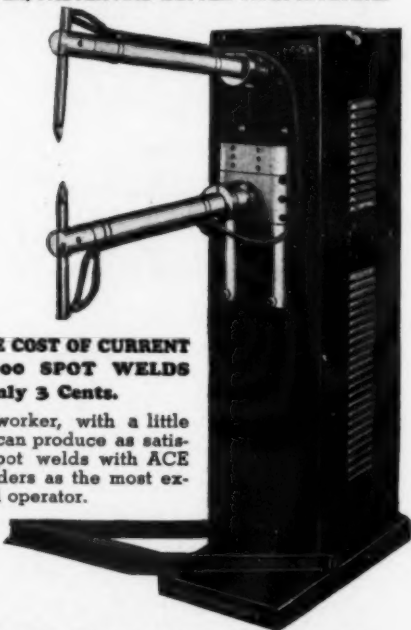
The burnishing compartment is the middle of three sections of the drum, the other two sections being storage compartments for the burnishing balls.

Starting the operating cycle, the middle section is loaded completely with skate parts, so they have no chance of tumbling on one another with resultant injury to themselves. The side door then is closed and the barrel operated in burnishing direction. The balls automatically enter the middle compartment and work through and around the parts.

When the burnishing is completed, the barrel is operated in the opposite direction and the balls automatically return to the end sections. The spent burnishing soap is also run to the ball compartments where it is drained off through valves. A hollow shaft and swivel permit rinsing of balls and work during return of the balls to the ball compartments. It is said the equipment represents an advance in burnishing barrel design because of the total elimination of labor of handling balls, and the provision for rinsing balls and work while the balls are returning to the storage compartments.

ACE SPOT WELDERS

FOR ECONOMICALLY FASTENING OR JOINING
ASSEMBLIES OF SHEET METAL OR WIRE.
CHEAPER, FASTER AND BETTER THAN RIVETING.



**AVERAGE COST OF CURRENT
FOR 1,000 SPOT WELDS
Only 3 Cents.**

Average worker, with a little practice can produce as satisfactory spot welds with ACE Spot Welders as the most experienced operator.

Sizes from 5 KW up, priced at \$90.00

Also motor-driven welders, variable speeds,
60 to 120 strokes per minute.

Send Coupon No. 48 today for full details and possibilities of increasing your profits with ACE Spot Welders.

PIER EQUIPMENT MFG. CO.

WELDING EQUIPMENT DIVISION

630 Cross Street,

Benton Harbor, Michigan

Look for
**The NEW
BIGGER
BLUE BOOK**

in February

It will be an attractive publication, with a lot of new advertisers.

Every manufacturer of machine tools and related equipment should be in it.

Write for rate.

THE ONLY TAPPER WITH A LEATHER CLUTCH

Ettco - Emrick

TAPPING ATTACHMENTS

ETTCO pioneered sensitive tapping 15 years ago with a leather lined friction driving clutch.

As yet we have found no substitute to equal the smooth, consistent super-sensitive action of leather for the exacting requirements of tapping.



The 1937 clutches have about double the "pull" and wear. Taking the Tapper apart and changing clutches is now a matter of a few minutes.

The Tappers have ball bearing spindles—needle bearing intermediate gears and all helical gears to insure the greatest possible speed.

**The Tap Idles "In"—Not Reverse—
This Means Better Holes and Far
More Tap Life.**

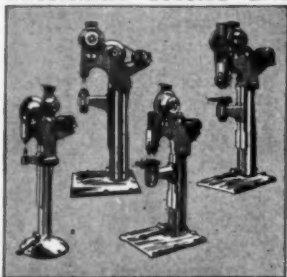
*Drop us a line for our catalogue.
Send Quickmail Coupon No. 37*

These tappers are used with the ETTCO *multiple tapping system* and our No. 71 *gravity foot operated tapping machine*.

ETTCO TOOL CO.
594 JOHNSON AVE. BROOKLYN, N. Y.

AUTOMATICALLY SET 1-2-3 or 4 RIVETS AT A TIME!

● The manufacturer who approaches riveting and assembly problems through Chicago automatic setters and Chicago Rivets invariably obtains the



ONE OF THE WORLD'S LARGEST
MANUFACTURERS OF RIVETS
AND RIVETING EQUIPMENT

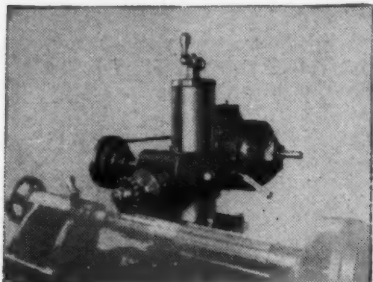
advantage of lower costs. With a complete line of all types of riveters, there is a Chicago unit that best meets each individual problem. Send sample assembly with inquiry for engineering and production analysis. No obligation.

Chicago

CHICAGO RIVET & MCH. CO.
1855 South 54th Avenue
Cicero, P. O., Chicago, Illinois

Use Quickmail Coupon No. 56

★ IT'S AMAZING!!! The MASTER Lathe Converter ★



Easily and quickly
attached to an ordi-
nary engine lathe.

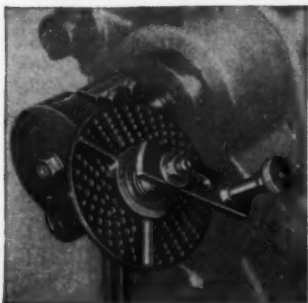


Does all milling
operations such
as: gear work,
splines work,
broaching key-
ways, hobbing
etc. Grinding at
all angles, inter-
nal or external.

**No Dismantling of Lathe — Fits on
compound same as your tool post.
Not "Just Another Lathe Attachment"**

USE QUICKMAIL COUPON NO. 58

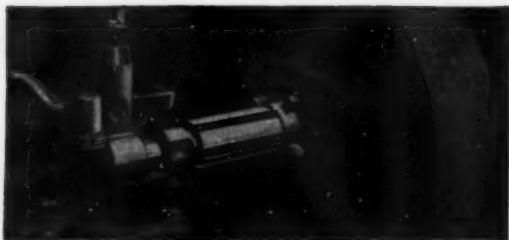
The MASTER Geared Type Dividing Head ★



Fits into rear
open end of lathe
spindle. Has 40
to 1 reducing
gear—counting
indicators, three
plates allowing
720 divisions.
Collet furnished
to fit your spindle.

MASTER MACHINE & TOOL CO.
NORTH KANSAS CITY, MISSOURI

With **NICHOLSON** **EXPANDING MANDRELS**



you have available for immediate use internal chucks for holding any hurry-up break-down job that comes along. Can be used on lathes, grinders, shapers or millers. Take any bore— $1/2"$ to $7"$. Made in fourteen sizes. *Send Quick-mail Coupon No. 45 for Bulletin 530.*

3 and 4-Way CONTROL VALVES

for operating single and double acting air, steam, water and oil cylinders. Made in lever, foot, solenoid and motor operated. All pressures up to 3000 lbs. Bulletin on request.

Other Products: Arbor Presses, Flexible Couplings, Steel and Stainless Ball Floats, Steam Traps and Separators, Air Separators, Traps and Vents, etc.

W. H. Nicholson & Company
117 Oregon St., Wilkes-Barre, Pa.

This refers to ad on
front cover of January
Hitchcock's Blue Book.

**HITCHCOCK
PUBLISHING CO.**
Room 1235
508 S. Dearborn St.
CHICAGO, ILL.

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

**DREIS & KRUMP
MFG. CO.**
7440 Loomis Blvd.
CHICAGO, ILL.

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

**HARDINGE
BROTHERS, INC.**
ELMIRA, N. Y.

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

**BUFFALO FORGE
CO.**
161 Mortimer St.
BUFFALO, N. Y.

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

**MORRISON
MACHINE
PRODUCTS, INC.**
ELMIRA, N. Y.

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

**JONES & LAMSON
MACHINE CO.**
SPRINGFIELD, VT.

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

**CULLMAN WHEEL
CO.**
1359 Altgeld St.
CHICAGO, ILL.

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

**W. A. WHITNEY
MFG. CO.**
636 Race St.
ROCKFORD, ILL.

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

**ARMSTRONG
BLUM MFG. CO.**
5741 Bloomingdale
Ave.
CHICAGO, ILL.

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

**CANEDY-OTTO
MFG. CO.**
CHICAGO HEIGHTS,
ILL.

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

**ARMSTRONG
BROS. TOOL CO.**
308 N. Francisco Av.
CHICAGO, ILL.

Trial Order

**CHICAGO WHEEL
& MFG. CO.**
1101 W. Monroe St.
CHICAGO, ILL.

7
Stick coupon on a postcard or
letterhead and sign name, title
and firm. It will bring a bul-
letin on Chicago Press Brakes.

DREIS & KRUMP MFG. CO.

1
Stick coupon on your letterhead
and sign your name, title and
firm name. Your request for in-
formation on the Sjogren chuck
will be forwarded to the nearest
Sjogren distributor.

**HITCHCOCK PUBLISHING
CO.**

8
Stick coupon on letterhead or
postcard and sign name, title
and firm for bulletin on the
Buffalo multiple spindle drill.

BUFFALO FORGE CO.

2
Stick coupon on letterhead or
postcard and sign name, title
and firm for bulletin No. 36 on
Hardinge Collets.

HARDINGE BROS., Inc.

9
Stick coupon on letterhead
only and sign your name,
title and firm for catalog on
J & L comparators.

**JONES & LAMSON
MACHINE CO.**

3
Stick coupon on letterhead or
postcard and sign name, title
and firm for bulletin No. 34-A
on Collets and Feed Fingers.

**MORRISON MCH.
PRODUCTS**

10
Stick coupon on your letterhead
and sign your name, title and
firm name for catalog describ-
ing Whitney lever punches.

W. A. WHITNEY MFG. CO.

4
Stick coupon on letterhead or
postcard and sign name, title
and firm for catalog on Cull-
man sprockets.

CULLMAN WHEEL CO.

11
Stick coupon on your letterhead
and sign your name, title and
firm name for information on
Canedy-Otto multiple spindle
drills.

CANEDY-OTTO MFG. CO.

5
Stick coupon on letterhead or
postcard and sign name, title
and firm for catalog on Marvel
No. 8 Hack Saws.

**ARMSTRONG-BLUM
MFG. CO.**

12
Stick coupon on letterhead or
postcard and sign name, title
and firm for Handee Grinder on
10 day trial.

**CHICAGO WHEEL
& MFG. CO.**

6
Stick coupon on letterhead or
postcard and sign name, title
and firm for catalog on Arm-
strong Bros. Tools.

**ARMSTRONG BROS.
TOOL CO.**

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

**PROCUNIER
SAFETY CHUCK
CO.**

**14 S. Clinton St.
CHICAGO, ILL.**

13

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

**WYZENBEEK
& STAFF**

**642 Washington Bl.
CHICAGO, ILL.**

19

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

**TOMKINS-
JOHNSON CO.**
JACKSON, MICH.

14

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

**GALLAND-
HENNING
MFG. CO.**

**2753 S. 31st St.
MILWAUKEE,
WIS.**

20

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

**ROSS OPERATING
VALVE CO.**
**6480 Epworth
Blvd.
DETROIT, MICH.**

15

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

**DAVID J. ROSS
CO.**
**BENTON HARBOR,
MICH.**

21

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

**APEX MACHINE
AND TOOL CO.**
DAYTON, OHIO

16

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

**WARD
MACHINERY CO.**
**564 W. Washington
CHICAGO, ILL.**

22

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

**OLIVER
INSTRUMENT CO.**
**1408 E. Maumee St.
ADRIAN, MICH.**

17

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

**HAMMOND
MACHINERY
BUILDERS
KALAMAZOO,
MICH.**

23

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

**BALDOR
ELECTRIC CO.**
**4368 Duncan Ave.
ST. LOUIS, MO.**

18

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

**RIVETT LATHE &
GRINDER, INC.**
**Brighton
BOSTON, MASS.**

24

19

Stick coupon on letterhead or postcard and sign name, title and firm name for catalog on the complete Wyco line.

WYZENBEEK & STAFF

12

Stick coupon on letterhead or postcard and sign name, title and firm for information on the Tra-Grip tap holder.

PROCUNIER SAFETY CHUCK CO.

20

Stick coupon on letterhead or postcard and sign name, title and firm for your bulletin on Nopak Valves.

**GALLAND-HENNING
MFG. CO.**

14

Stick coupon on letterhead or postcard and sign name, title and firm for circular on the Tomkins-Johnson Riveter.

TOMKINS-JOHNSON CO.

21

Stick coupon on your letterhead and sign your name, title and firm name for information on the Rousseau Punch Press.

DAVID J. ROSS CO.

15

Stick coupon on your letterhead and sign your name, title and firm name for catalog No. 37 describing Ross Valves.

ROSS OPERATING VALVE CO.

22

Stick coupon on your letterhead and sign your name, title and firm name for information on Ward sheet metal machinery.

WARD MACHINERY CO.

16

Stick coupon on your letterhead and sign your name, title and firm name for catalogs No. 9 and No. 8 on Apex screw driver bits and Apex production tools.

**APEX MACHINE AND
TOOL CO.**

23

Stick coupon on your letterhead and sign your name, title and firm name for catalog and price list on Hammond grinders.

**HAMMOND MACHINERY
BUILDERS**

17

Stick coupon on your letterhead and sign your name, title and firm name for information on Oliver of Adrian die making machines.

OLIVER INSTRUMENT CO.

24

Stick coupon on letterhead or postcard and sign name, title and firm for bulletin on Rivett precision lathes.

**RIVETT LATHE &
GRINDER, Inc.**

18

Stick coupon on letterhead or postcard and sign name, title and firm for bulletin on Ball Bearing Grinders.

BALDOR ELEC. CO.

31
Stick coupon on letterhead or postcard and sign name, title and firm for catalog on Wells duplex rotary cutoff saw.

WELLS MFG. CORP.

32
Stick coupon on letterhead or postcard and sign name, title and firm for information on Wittek Roll Feeds.

WITTEK MFG. CO.

33
Stick coupon on your letterhead and sign your name, title and firm name for information on Queen City heavy duty Grinders.

QUEEN CITY MACHINE TOOL CO.

34
Stick coupon on letterhead or postcard and sign name, title and firm for your catalog on Flexible Shaft Machines.

N. A. STRAND & CO.

35
Stick coupon on your letterhead and sign your name, title and firm name for information on the Black & Decker low speed drill.

BLACK & DECKER MFG. CO.

36
Stick coupon on your letterhead and sign your name, title and firm name for a circular illustrating Ford Rotary Files.

M. A. FORD MFG. CO.

37
Stick coupon on your letterhead and sign your name, title and firm name for information on the JALM receding chaser tap.

LANDIS MACHINE CO.

38
Stick coupon on your letterhead and sign your name, title and firm name for Catalog No. 33 describing Modern Collet parts for screw machines.

MODERN COLLET AND MACHINE CO.

39
Stick coupon on letterhead or postcard and sign name, title and firm for full information on BASA Hammers & Reversible Ratchet Wrench.

GREENE-TWEED & CO.

40
Stick coupon on letterhead or postcard and sign name, title and firm for catalog on Delta 17-inch drill presses.

DELTA MFG. CO.

41
Stick coupon on letterhead or postcard and sign name, title and firm for catalog on the L-W Line.

L-W CHUCK CO.

42
Stick coupon on letterhead or postcard and sign name, title and firm for information on the Tornado Cleaner.

BREUER ELECTRIC MFG. CO.

25

31

26

32

27

33

25

34

29

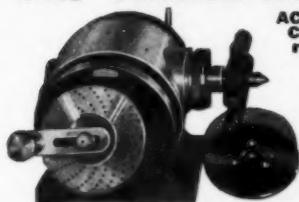
45

30

36

TOOL VALUES

10½" Universal Index Centers



ACTUAL SWING 11'
Can be furnished
right or left hand.



A new universal dividing head designed to give the utmost in a well-balanced, rigid and accurate index center. All materials and workmanship are of the highest grade. Head stock is swivel and graduated up to 180 degrees. Head can be tilted above and below vertical and perpendicular lines. Spindle has taper bearing and is provided with take-up collar for end thrust. No. 10 B. & S. **\$125.**
taper has large hole through spindle.

10½" Full Universal Dividing Head

Index Centers for Universal Milling Machines



Can be furnished
right or left hand. **\$185**
Actual swing 11'

For all kinds of indexing and spiral cutting. Swivel head stock is graduated to 180 degrees and can be tilted above and below the perpendicular. Spindle has No. 10 B. & S. taper front and back with tapered bearing and thrust collar.

L-W also manufactures magnetic chucks, lathe chucks, demagnetizers and vises. Send Coupon No. 36 for catalog.

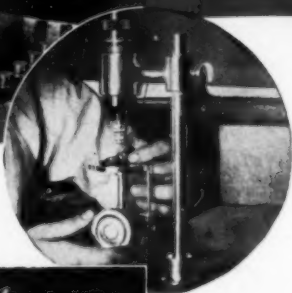
L-W CHUCK CO.

1-7 N. ST. CLAIR ST., -:- TOLEDO, OHIO

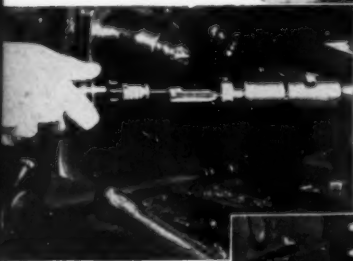
HAND



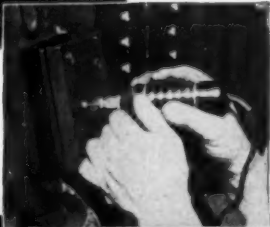
The De Luxe Handee pays for itself many times over, often on one job.



Reaches those hard-to-get-at places. Its light weight and ease of handling in any position save time on a wide range of operations.



Indispensable in die shops and all metal working plants for touching up and polishing every type of die, even when set on presses.



UNMATCHED AND SM

- The choice of The original
- Actually a w Cuts, Routs Sharpens, Clo more than changeable.
- Take it anyw DC socket, pensable in r tory, on the p for work on a rials, wood, parts without
- Every mechan tries the H v ever got all so many jobs Saves loads yes, tempo jobs a cinch.

Order one T
Trial or Se

BEST G
to Deservi

HANDY

TOOL OF 1001 USES

MATCHED POWER, SPEED AND SMOOTH PERFORMANCE

The choice of industry since its introduction, 6 years ago.
The original tool of this type—and the leader today.

Actually a whole shop full of tools in one. Grinds, Drills,
Routs, Polishes, Carves, Sands, Saws, Engraves,
Sharpens, Cleans, etc. Instantly ready for any job—uses
more than 200 different accessories, quickly inter-
changeable.

Use it anywhere, right to your job. Plug in any AC or
DC socket, 110 volts, and you're all ready to go! Indis-
pensable in model and tool rooms, experimental labora-
tory, on the production line, in large and small plants—
work on all metals, alloys, glass, composition mate-
rials, wood, stone, etc. Invaluable for repairing machine
parts without dismantling machine.

Every mechanic and craftsman who
uses the Handy wonders how he
ever got along without it—it does
so many jobs quicker, easier, better.
Saves loads of time, energy and—
cost, tempo too. Makes tough
jobs a cinch.

Order one Today on 10-Days
Trial or Send for Catalog,

BEST GIFT OF ALL
For Deserving Employees.



Use COUPON No. 10
For TRIAL OFFER
Use COUPON No. 12
Sensible Box, 1931—

**CHICAGO WHEEL
AND MFG. CO.**

1111 W. Monroe St., Dept. 88, Chicago, Ill.

See Later
Model

\$18⁵⁰

patented

© American
Firm

**This New 40 Volt Arc Welding
will save hundreds of dollars
in your plant**



**30 DAYS
TRIAL**

in your shop
at our risk
PROVES
its your biggest
money-making
tool

It's Easy to Own!

Don't go another day without getting facts about how little it costs to own this amazing new tool that cuts costs squarely in two in pattern room, tool room, maintenance and production, as well as in jig and die work.

THE NEW HOBART 40 VOLT "SIMPLIFIED" ARC WELDER

comes to you on 30 Days Trial—has remote control, current saving motor and features found in no other welder. Costs you less to operate—Handles either the low cost plain or coated rod with greatest of ease on light as well as heavy jobs. The coupon below brings valuable book. Hobart Bros., Box TB-18 Troy, O.

In answering use Quickmail Coupon No. 51

THE FASTEST SELLING WELDER ON THE MARKET

Hobart Bros., Box TB-18 Troy, O.
Gentlemen: Please send me, without obligation, complete details on the new Hobart 40 Volt Arc Welder, also the complete catalog on easier, more profitable welding.

Name _____

Address _____

FREE!

IF YOU ARE
INTERESTED
IN THIS NEW
ARC WELDING



This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

ETTCO TOOL CO.
594 Johnson Ave.
BROOKLYN, N. Y.

37

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

MARSHALLTOWN
MFG. CO.
MARSHALLTOWN, IA.

43

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

STANDARD GAGE
CO., INC.
POUGHKEEPSIE,
NEW YORK

38

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

DREMEL MFG. CO.
5825 Ct.
RACINE, WIS.

44

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

ACME
INDUSTRIAL CO.
210 N. Laflin St.
CHICAGO, ILL.

39

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

W. H. NICHOLSON
& CO.
WILKES-BARRE, PA.

45

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

SCULLY-JONES
& CO.
1905 S. Rockwell
CHICAGO, ILL.

40

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

MALL TOOL CO.
7742 So. Chicago
Ave.
CHICAGO, ILL.

46

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

F. J. LITTELL
MACHINE CO.
4153 Ravenswood
Ave.
CHICAGO, ILL.

41

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

PROGRESSIVE
TOOL &
CUTTER CO.
FERNDAL, MICH.

47

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

WHITNEY METAL
TOOL CO.
ROCKFORD, ILL.

42

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

PIER EQUIPMENT
MFG. CO.
630 Cross St.
BENTON HARBOR,
MICH.

48

43
Stick this coupon on your letterhead and sign name, title and firm for catalog of Marshalltown process.

MARSHALLTOWN MFG. CO.

37
Stick coupon on your letterhead and sign your name, title and firm name for catalog on Etico-Emrick Tapping Attachment.

ETICO TOOL CO.

44
Stick coupon on your letterhead and sign your name, title and firm name for a booklet describing the Dremel Moto-Tool.

DREMEL MFG. CO.

38
Stick coupon on your letterhead and sign your name, title and firm name for free catalog of the complete line of Standard gages.

STANDARD GAGE CO., INC.

45
Stick this coupon on your letterhead and sign. If you wish only one catalog, write "Valves" or "Mandrels" after your signature.

W. H. NICHOLSON

39
Stick coupon on letterhead or postcard and sign name, title and firm for bulletin on Drill Jig Bushings.

ACME INDUSTRIAL CO.

46
Stick this coupon on a postcard and sign name, title and firm name to get catalog on Mall Power Tools.

MALL TOOL CO.

40
Stick coupon on your letterhead and sign your name and title for a catalog of Scully-Jones Equipment.

SCULLY-JONES & CO.

47
Stick coupon on letterhead or postcard and sign name, title and firm for catalog on Progressive End Mills.

PROGRESSIVE TOOL
& CUTTER CO.

41
Stick coupon on letterhead or postcard and sign name, title and firm for information on automatic centering reals.

F. J. LITTELL MACHINE CO.

48
Stick coupon on your letterhead and sign your name and title for information on Ace Welders.

PIER EQUIPMENT MFG. CO.

42
Stick coupon on letterhead or postcard and sign name, title and firm for a catalog on the Whitney line of tools.

WHITNEY METAL
TOOL CO.

Stick coupon on letterhead or postcard and sign name, title and firm for information and prices on Colonial Bushings.

COLONIAL BUSHINGS, INC.

Stick coupon on letterhead or postcard and sign name, title and firm for catalog on Deluxe Hande Grinders.

**CHICAGO WHEEL
& MFG. CO.**

Stick this coupon on a postcard or letterhead and mail to receive a rivet price list and illustrations of Chicago Automatic Rivet Setters.

**CHICAGO RIVET &
MACHINE CO.**

Stick coupon on your letterhead and sign your name, title and firm name for information on the No. 40 Abrasaw.

**BRIDGEPORT SAFETY EMERY
WHEEL CO.**

Stick coupon on your letterhead and sign your name, title and firm name for catalog of Harvill die casting machines.

H. L. HARVILL, INC.

Stick coupon on letterhead or postcard and sign name, title and firm for information on the Hobart Arc Welder.

HOBART BROTHERS

Stick coupon on your letterhead and sign your name, title and firm name for information on the Master Lathe Converter.

**MASTER MACHINE &
TOOL CO.**

Stick coupon on your letterhead and sign your name, title and firm name for bulletin No. 9-C describing the South Bend 9-inch lathes.

SOUTH BEND LATHE WORKS

Stick coupon on letterhead or postcard and sign name, title and firm for catalog on Diamond-Grip Collets.

SUTTON TOOL CO.

Stick coupon on your letterhead and sign your name, title and firm name for your copy of the booklet on Pullmore Clutches.

**ROCKFORD DRILLING MA-
CHINE DIV. BORG
WARNER CORP.**

Stick this coupon on a postcard or letterhead to receive data on the Precision Tool Head.

PRECISION TOOL CO.

Stick coupon on letterhead or postcard and sign name, title and firm for your new Catalog on Federal Test Indicators.

FEDERAL PRODUCTS CORP.

CATALOG

**CHICAGO WHEEL
& MFG. CO.**
1101 W. Monroe St.
CHICAGO, ILL.

49

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

**COLONIAL
BUSHINGS, INC.**
147 Jos. Campau
DETROIT, MICH.

55

This refers to article
in January issue of
Hitchcock's Blue Book.

**BRIDGEPORT
SAFETY EMERY
WHEEL CO.**
BRIDGEPORT,
CONN.

50

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

**CHICAGO RIVET
& MACHINE CO.**
1855 S. 54th Ave.
Cicero P. O.
CHICAGO, ILL.

56

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

**HOBART
BROTHERS**
Box TB-18
TROY, OHIO

51

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

H. L. HARVILL INC.
2344 E. 38th St.
LOS ANGELES,
CALIF.

57

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

**SOUTH BEND
LATHE WORKS**
766 E. Madison St.
SOUTH BEND, IND.

52

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

**MASTER MACHINE
& TOOL CO.**
NORTH KANSAS CITY,
MISSOURI

58

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

**ROCKFORD
DRILLING
MACHINE DIV.**
BORG-WARNER CORP.
410 Catherine St.
ROCKFORD, ILL.

53

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

**SUTTON
TOOL CO.**
2836 W. Grand Bl.
DETROIT, MICH.

59

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

**FEDERAL
PRODUCTS CORP.**
1144 Eddy St.
PROVIDENCE, R. I.

54

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

**PRECISION
TOOL CO.**
BRIDGEPORT,
CONN.

60

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

WILLIAM TURNER

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

PUTNAM TOOL

67

Stick coupon on letterhead or postcard and sign name, title and firm for catalog on Putnam End Mills, etc.

PUTNAM TOOL CO.

68

Stick coupon on your letterhead and sign your name, title and firm name, for a bulletin describing the Walker-Turner "900" series drill presses.

WALKER-TURNER CO., INC.

68

Stick coupon on letterhead or postcard and sign name, title and firm for full information on Federal Presses.

FEDERAL PRESS CO.

69

Stick coupon on your letterhead and sign your name, title and firm name for a copy of Gits Bros. new general catalog.

GITS BROS. MFG. CO.

69

Stick coupon on letterhead or postcard and sign name, title and firm for your copy of the Banner catalog of cams.

BANNER MFG. CO.

69

Stick coupon on your letterhead and sign your name, title and firm name for information on Vimco General Machine Light.

VIMCO MANUFACTURING CO.

70

Stick coupon on letterhead or postcard and sign name, title and firm for information on the Schmidt Marking Machines.

GEO. T. SCHMIDT, INC.

70

Stick coupon on your letterhead and sign your name, title and firm name for information on the R & L Turning and Boring Tool.

R & L TOOLS

71

Stick coupon on letterhead or postcard and sign name, title and firm for full information on Universal Vises.

ODIN UNIVERSAL CORP.

71

Stick coupon on your letterhead and sign your name, title and firm name for information on Benjamin "Turnlex" equipment.

BENJAMIN ELECTRIC CO.

72

Stick coupon on letterhead or postcard and sign name, title and firm for bulletin on Grand Rapids surface grinders.

GALLMEYER & LIVINGSTON CO.

72

Stick coupon on your letterhead and sign your name and title for information on Kellerflex machines.

**PRATT & WHITNEY
Div. H-S-P**

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

**WALKER-TURNER
CO., INC.**
1718 Berckman St.
61 PLAINFIELD, N. J.

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

**PUTNAM TOOL
CO.**
2983 Charlevoix Ave.
67 DETROIT, MICH.

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

**GITS BROS. MFG.
CO.**
1860 S. Kilbourne
Ave.
62 CHICAGO, ILL.

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

**FEDERAL PRESS
CO.**
68 ELKHART, IND.

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

VIMCO MFG. CO.
109 Chenango St.
63 BUFFALO, N. Y.

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

**BANNER MFG.
CO.**
1873 Clybourn Ave.
69 CHICAGO, ILL.

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

R & L TOOLS
1825 Bristol St.
64 PHILADELPHIA, PA.

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

**GEO. T. SCHMIDT
INC.**
1802 Belle Plaine Ave.
70 CHICAGO, ILL.

This refers to article
in January issue of
Hitchcock's Blue Book.

**BENJAMIN
ELECTRIC CO.**
65 DES PLAINES, ILL.

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

**ODIN UNIVERSAL
CORP.**
110 S. Dearborn St.
71 CHICAGO, ILL.

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

PRATT & WHITNEY
Div. N-B-P CO.
76 HARTFORD, CONN.

This refers to your
ad in Jan. issue of
Hitchcock's Blue Book.

**GALLMEYER &
LIVINGSTON CO.**
303 Straight Ave.
72 GRAND RAPIDS,
MICH.

ADJUSTABLE
While Running!



NEW
Absolutely Different

**THE PRECISION
UNIVERSAL TOOL HEAD**

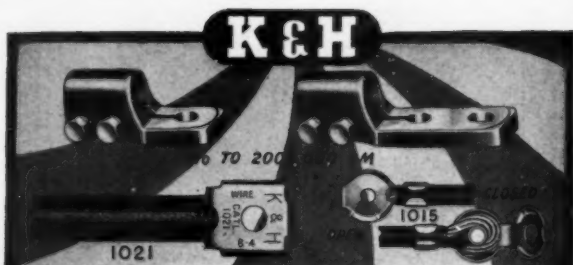
does the job faster, more accurately and
for less cost, because it is

ADJUSTABLE WHILE RUNNING!

For boring, counterboring, recessing, tre-
panning, undercutting, etc.

For bulletins and additional information,
send Coupon No. 60

THE PRECISION TOOL COMPANY
Bridgeport, Connecticut



K & H SOLDERLESS TERMINAL LUGS AND CONNECTORS FOR ALL PURPOSES

• WRITE FOR CATALOG •

KRUEGER & HUDEPOHL

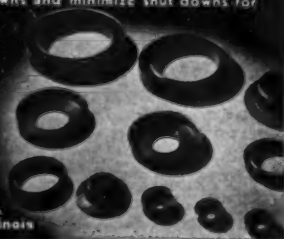
WALSH BUILDING,

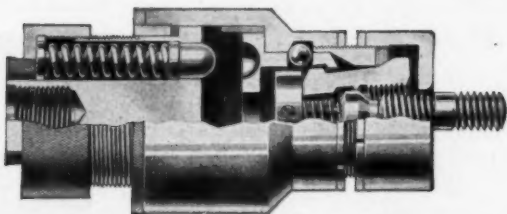
CINCINNATI, OHIO

MECHANICAL LEATHER PRECISION

CHICAGO RAWHIDE Packings end power losses—seal perfectly, completely—for they are uniformly exact in size and shape, are precision made. They give long uninterrupted service, prevent break downs and minimize shut downs for they are formed from Mechanical Leather—special hides, mechanically tanned and treated to closely held factors of hardness, resiliency, heat resistance and flexibility. For all around performance and absolute dependability specify "Chicago Rawhide" in packings.

Chicago Rawhide Mfg. Co.
1282 Elston Avenue, Chicago, Illinois

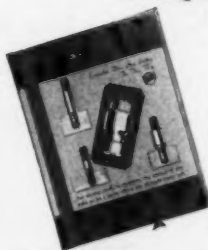




TITAN STUD SETTER

Sets Studs to a Uniform Degree of Tightness without Strained or Mutilated Threads

The Titan Stud Setter is a new controlled drive type for driving stud bolts, being full automatic in loading and releasing. It is a power-driven unit adaptable to all types of drill presses, air or electric tools, both portable and stationary. Operates at high or low speeds. Positive in driving and automatic in releasing. Studs may be set to any predetermined degree of tightness.



The possibilities of increased production with this tool, due to its capacity, speed range and service, plus the added economy that its safety features assure by automatic operation—all contribute toward making it a tool worthy of investigation and profitable to use.

**TITAN
TOOL
COMPANY**



**FAIRVIEW,
PENNA.,
U. S. A.**

GRANT Riveters

Noiseless Spinning
or Vibrating Hammer

Grant single and multiple spindle riveting machines produce best quality work at high speed.

Heads are tight or loose—exactly as you want them.

Send samples for
test—write today

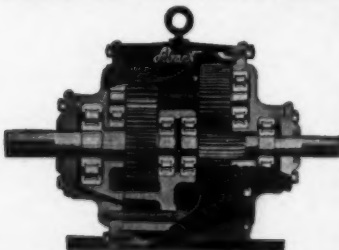
**GRANT Mfg.
& Machine Co.**

C. E. Station

Bridgeport, Conn.



SPEED REDUCERS



**SPUR GEAR
Straight Line
Drive**

Oil-tight, dust-proof, semi-steel housings. Full ball or roller bearings. All gears and shafts heat-treated, nickel chromium steel.

**ABART
REDUCERS**

are highly efficient, compact, durable. All Spur Gear Units can be furnished in vertical type. Write for latest catalog.

Abart

GEAR AND MACHINE CO.

MANUFACTURERS OF

Speed Reducers & Gears

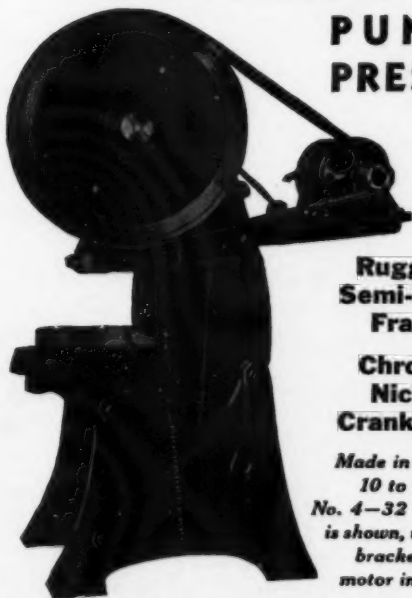
4832 WEST 16TH ST

CHICAGO, ILLINOIS

MARSHALLTOWN

Open Back Inclinable

PUNCH PRESSES



**Rugged,
Semi-Steel
Frame**

**Chrome
Nickel
Crankshaft**

*Made in Six Sizes.
10 to 70 tons
No. 4-32 Ton Press
is shown, with motor
bracket and
motor installed.*

Here's the answer to your punch press problems—a modern line of sturdy, speedy, safe and economical press equipment—engineered for long life and low production costs. We'll gladly supply you with full information on our punch presses and other metal working equipment—throatless shears, bevel shears, bending rolls, etc.

Phone or write—or send Coupon No. 43 for catalog.

MARSHALLTOWN MANUFACTURING CO.
900 East Nevada St., Marshalltown, Iowa

107

KRW Hydraulic and Sensitive
PRESSSES



MASTER LAMP

All Master Lamps are equipped with spring shock absorbers to protect bulbs. Ball joints are of malleable iron fittings, with safety lock pins. Wire fully concealed.

	Each Machine	Lot 12 each	Lot 72 each	Height	Range	Weight crated
Bench	\$5.50	4.95	4.75	26"	3½'	5½ lbs.
Floor	\$10.00	9.00	8.75	3'	3½'	37 lbs.

FOB Detroit, Mich.

MASTER LAMP CO.

3300 Hubbard Ave.,
Detroit, Mich.

Modernize

with Individual Motor Drives

¼ to 20 H. P.

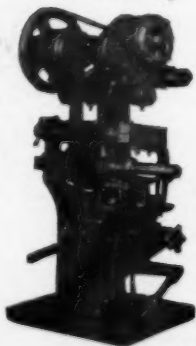
by Berkeley

Readily applied in a wide range of sturdy, welded mountings—simplified and trouble-proof in design and construction—engineered for your exact needs with the benefit of our extensive experience.

Write **TODAY** for full information.

Berkeley Engineering Co.

1381 East 17th St., Cleveland, Ohio



KRW Hydraulic and Sensitive ARBOR PRESSES

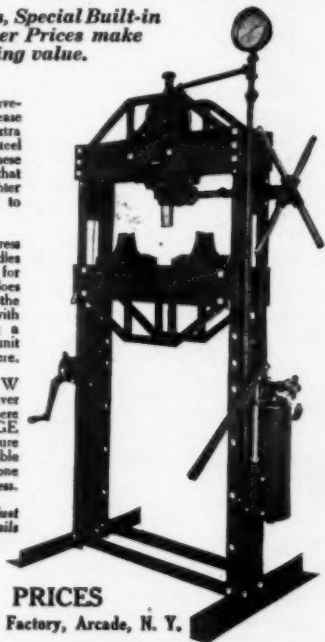
New Improvements, Special Built-in Features and Lower Prices make them an outstanding value.

THE last word in convenience, efficiency and ease of operation. Built extra strong and well braced, with steel trusses electrically welded, these presses will withstand strains that would cause presses of lighter and inferior construction to buckle or collapse.

Hand wheel for sensitive press operations has sliding handles which pull out to the ends for increased leverage. Work does not have to be changed from the work table as is the case with other make presses having a separate sensitive press unit mounted on the side or elsewhere.

The importance of this K R W feature as a time and labor saver can be appreciated. Also there is **NO EXTRA CHARGE** for this important built-in feature on a KRW Press. Work table can be raised easily with one hand. A strictly one-man Press.

Write for special circular, just off the press, giving full details and specifications of all KRW Arbor Presses.



PRICES

F. O. B. Factory, Arcade, N. Y.

No. 37—35 ton Hydraulic and Sensitive Arbor Press	\$150.00
No. 37E—50 ton Hydraulic and Sensitive Arbor Press	180.00
No. 37F—70 ton Hydraulic and Sensitive Arbor Press	300.00
Gauge and fittings, \$15.00 extra on all presses.	

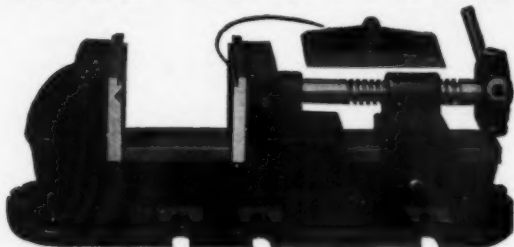
K. R. WILSON

10-16 Lock Street, Buffalo, N. Y., U.S.A.

EXPORT DEPARTMENT
90 West St., New York, N. Y.

WEST COAST BRANCH
722 Mateo St., Los Angeles

HOLD EVERYTHING



GEM DRILL PRESS, VISES

MADE IN 3 SIZES

BOOKLET DESCRIBES OUR ENTIRE LINE

J. E. Martin Tool & Die Works

518 W. State St., Established 1912 Springfield, Ohio

We Specialize In Hollow Boring

LATHE SPINDLES
SPINDLE SLEEVES
PISTON RODS

RAMS

HYDRAULIC CYLINDERS,
etc., etc.

ANY GRADE OF STEEL—
CARBON OR ALLOY.



Send Blueprints for Estimates

AMERICAN HOLLOW BORING CO.

1035 WEST NINETEENTH ST., ERIE, PA.

ERRINGTON HYS PD

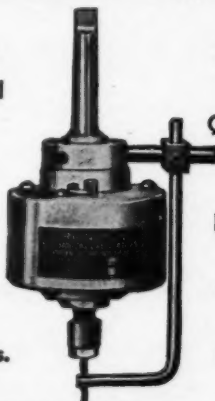
Super-Sensitive Ball Bearing

Cone Drive

2 to 1 Auto-Reverse Tapping Chuck

Combination
Bronze & Ball
Bearings
Thru-Out

Easy and
Economical
Replacement
of
Cone-Clutches.



Depth gauge
facilitates
Quick-Handling
Especially
on
Bottom-Holes

Other Styles
and Sizes
0" to 2" taps

Size	Taps in Steel	Taps in Cast Iron	Price	Code
No. 00	0" to 3/16"	to 1/4"	\$35.00	Phlam
No. 0	to 3/8"	to 1/2"	\$50.00	Phalanx

The principle on which this Style is designed is especially effective on very small tapping; whereas in the No. 0 size the Frictional Grip is Greatly INTENSIFIED, to cover a wider range, without loss of sensitiveness.

Errington Mechanical Laboratory

Main Office and Works: STATEN ISLAND, New York

Chicago Office: New York Office: Boston Office:
6047 N. Talman Ave. 220 Broadway 930 Old South Bldg.

McMAHON Adjustable Angle Plate

For grinding any angle accurately.

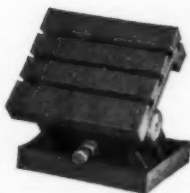
Made in two sizes

Model "A" with T slots $3\frac{1}{2} \times 3\frac{1}{2}$...Price \$12.

Model "D" with tap hole $6 \times 7\frac{1}{2}$...Price \$30.

Desirable territory open for dealers

FRANK McMAHON CO.
1320 Richard St., Dayton, O.



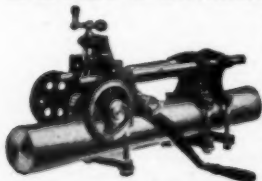
Portable Elevating Tables

This table is operated by a strong sturdy hydraulic unit. A press of the foot lever causes the tablet to raise. Press on the release valve the table slowly drops to the required height. Now over 600 in use. 30" minimum height; 45" max. height; 24x30 table, carrying capacity 2000 lbs.

Midwest Tool & Engineering Co.
112 Webster Street, Dayton, Ohio

Write for illustrated circular

BURR Portable Keyseaters



Indispensable for repair and maintenance work. BURR keyseaters mill keyways in the run or on the ends of shafts while they are still on the machine—accurately, quickly, economically—and save the necessity of taking down large shafts and housings. Made in 7 sizes, hand or power driven.

JOHN T. BURR & SON
429 Kent Ave., Brooklyn, New York



KEEP STOCK OFF THE FLOOR SAVE TIME, STEPS and MONEY

Handiest Racks keep bar stock, pipe and shafting neatly piled in plain sight. You can tell by a glance at them how much of each size you have on hand.

Shipped on approval. Write today for details.

Wm. S. YOHE SUPPLY CO.
503 Mahoning Road, Canton, Ohio

KNU-VISE Layout Table

Angle Plates and Cubes

Layout table is 30"x60", with adjusting screw in each leg to provide perfect table alignment. 1" table edge facilitates clamping. Bench type is 16"x20". All parts are carefully planed and commercially accurate.



**Heavy Ribbed
Layout Table,
wght., 1000 lbs.**

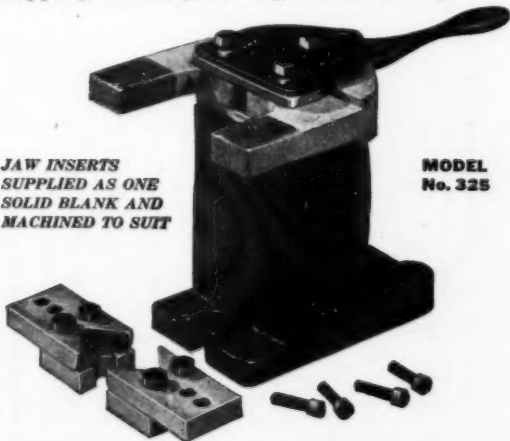
KNU-VISE

**Products Company - - - 6436 Cass Ave.
Detroit, Michigan**

**Knuckle Action Holding Fixtures for Drilling,
Tapping, Reaming, Milling, Counterboring.**

***JAW INSERTS
SUPPLIED AS ONE
SOLID BLANK AND
MACHINED TO SUIT***

**MODEL
No. 325**



HASSALL

NAILS, RIVETS & SCREWS



MADE TO ORDER IN ANY METAL—SEND FOR ILLUSTRATED FOLDER

JOHN HASSALL, INC. EST. 1888 400 OAKLAND ST., BROOKLYN, N. Y.



DRILL CHUCKS

With Hardened Steel Jaws

Capacity 0 to $\frac{1}{2}$ " fitted with No. 1 or No. 2 Morse taper shank . \$1.25ea.

No. 1 or No. 2 Morse taper shanks with $\frac{1}{2}$ " x 24 thread 73cea.

Chucks without shanks . . . 52cea.

WHY PAY MORE?

MADE BY

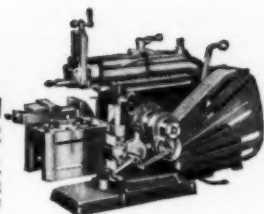
NIELSEN, INC.

LAWTON, MICH.

Atlas

NEW PRECISION 7" BENCH SHAPER

Priced at \$215. complete with guards less motor this new machine tool brings sensational economies on small shaping operations in tool room and shop.



Send for New 1938 Catalog

Gives detailed specifications of new Shaper and complete information about Atlas lathes, drill presses, arbor presses, tools and attachments.

ATLAS PRESS CO.

150 N. Pitcher St.

KALAMAZOO, MICHIGAN

WISE

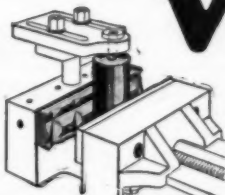


Fig. 3. V-Jaw for Round Work

All Vises are drilled and tapped to take our Standard JIG ATTACHMENTS

ANY VISE WILL PAY

Send for Circulars

For Drill Press. Often used on MILLER, SHAPER or PLANER.

Jaws 6", 9" and 12" Long

Flanged all around bottom for bolting down, with three slots at large end not shown.



Fig. 2
Without Jig
Attachments

THE GRAHAM MFG. CO.
76 Willard Ave., PROVIDENCE, R. I.

CENTERLESS GRINDING

(external only)

Cincinnati Centerless

Brown & Sharpe plain cylindrical

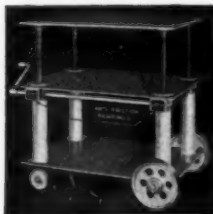
Precision work with latest equipment

Screw Machine Products

with or without grinding

Submit samples or blueprints for estimates

A-1 SCREW MACHINE PRODUCTS CO.
4618 W. Huron St., Chicago, Ill.



Using Hamilton Elevating Tables

in your tool room or stamping shop, one man will handle dies that formerly required two to three men to lift. Send for our illustrated circular and see for yourself the many jobs to which this handy tool adapts itself.

The Hamilton Tool Co.
Hamilton, Ohio, U. S. A.



GEARS

In Stock—Immediate Delivery

Gears, speed reducers, sprockets, thrust bearings, flexible couplings, pulleys, etc. A complete line is carried in our Chicago stock. Can also quote on special gears of any kind. Send us your blue prints and inquiries.

Write for Catalog No. 70

Chicago Gear Works, 769 W. Jackson Blvd.
CHICAGO, ILLINOIS

For Machine and Tool Work and Quick Set-Ups

Use Reich's—the only 3 way reading precision Indicator



Contact point mounted in centered cone bearings. .014 reading. Order direct or through your dealer.

Price \$5.00

Write for Folder

J. R. REICH MFG. CO.
334 Triangle Ave., Dayton, Ohio

GET THE WORK OUT SOONER



40,000 RPM
TO
65,000 RPM

S. U. L.
Speed under load

Cut hours off toolroom work—get out dies, tools, jigs, patterns, molds, faster with the help of Kipp Air Grinders (many models to choose from). Not only will these little tools speed up production, but they will cut your costs and save skilled craftsmen's time.

The small Kipp Air Grinders operate at speeds of from 40,000 to 65,000 r.p.m., with almost no drop in speed while under full grinding load. Speed under load is an exclusive Madison-Kipp feature because of the special Kipp Speed Governor which makes full use of air input.

Send for Information

MADISON-KIPP CORPORATION

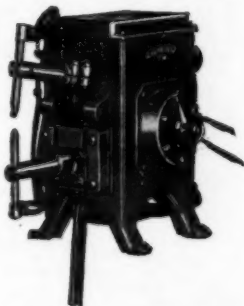
204 Waubesa Street • Madison, Wisconsin

For ECONOMY Try ARMGLO

Armгло resistance spot welders have the speed, accuracy and capacity to put your welding on a production basis. Adjustable sliding horn, 6-point heat regulator, sturdy construction for lifetime service and ample capacity for occasional heavy welds.

**2, 3 and 5 KVA sizes
\$120 and up.**

Armгло also manufactures hydraulic, air, motor driven and foot operated welders.



For complete details write to

ARMGLO CO.
3530 W. PIERCE ST.,
MILWAUKEE, WIS.

Eliminate Special and Costly Drill Jig Fixtures

By Using YOST
Drill Press Vises

Heavily constructed,
with flanges on base
for easy attachment.
"V" shaped slot holds
vertical work securely.

Write for circular 2-H

YOST MFG. CO.,



Meadville, Penna.



TANNEWITZ **24" Hi-Speed Band Saw**

SAWS NEARLY EVERYTHING

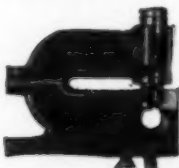
**Including Wood, Sheet Steel, Brass
and Aluminum Casting Gates, etc.**

1½ H. P. Direct Motor Drive.

Also 30"-36"-42" Sizes.

THE TANNEWITZ WORKS
GRAND RAPIDS, MICH.

WALES ADJUSTABLE HOLE PUNCHING DIES



are individual sub-press type units which
can be mounted in groups to punch almost
any arrangement of holes in flat sheets.
Operate in press or press brake. Capacity of
standard dies $\frac{7}{8}$ " holes in 14 gauge or under.
Also square and Vee notching dies.

Write for Bulletin A

THE STRIPPIT CORPORATION

1559 Niagara,

Buffalo, N. Y.



ENDS LIGHT GLARE

Better Light--Better Sight--Better Work

Non-Glare Prismatic Lens Relieves Eye
Strain. Size No. 60 fits 50-60-75 watt bulbs
—No. 100 fits 100 watt bulbs.

Sample offer—50¢ each; three for \$1; \$3
per dozen in 5 doz. lots prepaid. Sold on
moneyback guarantee; you must be satisfied.

HOLMES PRODUCTS CO.

21 E. Van Buren St.,

Chicago, Ill.

SUPREME ACCURACY

lies at your finger-tips when you have a set of Johansson Gage Blocks handy. Your work can have no greater precision than the instruments you use for measuring. Don't handicap yourself with anything less than the best—when the best is so accessible. Sets come with from 5 to 81 blocks—\$26.50 to \$295. Individual blocks are priced as low as \$3.50. Write today for Catalog No. 11.

JOHANSSON
GAGE BLOCKS AND ACCESSORIES
 Manufactured and serviced in the United States by
FORD MOTOR COMPANY
 Johansson Division  Dearborn, Michigan

**BETTER-MADE
 DIE SETS**

BAUMBACH

**AT LOWER
 COST**

**46
 DIFFERENT
 STYLES**



**OVER
 185,000
 SIZES**

Machined Steel

DIE SETS

Semi-Steel

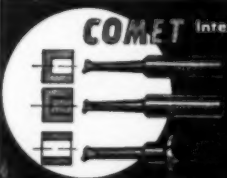
Drop Forged Steel

Send For Our New 288 Page Catalog

E. A. BAUMBACH MFG. CO.
 1810 South Kilbourn Ave., CHICAGO, ILLINOIS

COMET Internal Threading and Boring Tools
 For holes from 1/8" upwards, 15 Different Sizes.
 The precise thread angle is maintained through work hardening until tool is entirely worn down. The hardening cutting surface for regrinding.

Write for complete data
COMET TOOLS INC.
 37 Union Square, New York, N. Y.




New Drill Grinding Attachment
 fits the Black & Decker Grinders, gives you a correct grinding of twist drills.

PRICE ONLY \$12. *Why not own one that you may be able to grind your twist drills the way they should be ground.*

Write to
C. H. CARLSON MFG. CO.
 11-15 Main Street N. E.
 Minneapolis, Minn.

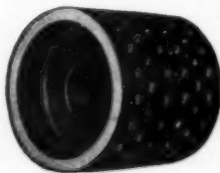
THE CHAMPION LINE



Toolholders, Expanding Mandrels,
 Shop Furniture, Emery Wheel Dressers
 and Cutters. Etc., Etc.

The Western Tool & Manufacturing Co., Springfield, O.

Vacuum Cup Metal Pulley



Revolutionizes pulley performance. The only pulley on the market with the vacuum principle. Guaranteed to eliminate slippage and increase life of belts and equipment. Adaptable for short center drives. *Write for descriptive folder. Sent on 30 days' trial.* Motor pulleys and pulleys up to 72" diameter.

VACUUM CUP METAL PULLEY CO.

INC.
 12536 Grand River Ave., Detroit, Mich.

FAMCO PRESSES

offer you quality at low price—efficient operation and sturdy construction.

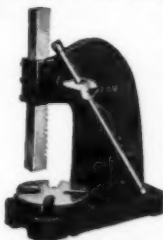
Arbor Presses in plain lever, ratchet or compound ratchet lever pilot wheel types.

Famco Foot Presses are unexcelled for producing light metal stampings of all kinds.

Send for full information.



Famco No. 12



Plain Lever Type

FAMCO MACHINE CO.
RACINE, WISCONSIN

A Day's Work in An Hours Time



SEND FOR
FREE BOOK

DOALL

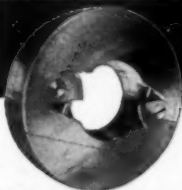
CONTOUR SAWING FILING
and POLISHING



Saves on
Varied Jobs

CONTINENTAL MACHINE SPECIALTIES, INC.
1301 South Washington Minneapolis, Minnesota

Industries Newest Cutting Process



SENECA FALLS *Automatic* WORK DRIVER

Self Centering . . . Quick Acting . . . No slip. Attaches to any chuck plate or spindle. Provides a slip-proof, balanced drive reducing chatter. Handles rough forgings or turned pieces—straight or taper. Eliminates dogging time. Reduces tool breakage. Write for details and size range.

SENECA FALLS MACHINE CO., 314 Falls St., Seneca Falls, N. Y.



Now you can get your belt hooks on processed card (Pat. Applied For). Not only protects fingers from sharp hooks but holds them to the last hook in correct position. There's no card end waste with WIREGRIP—easily cut to size with scissors or knife. Coming in all sizes, easily applied with a WIREGRIP Lacer or any other standard lacing machine.

Write for No. 10 Catalog

ARMSTRONG-BRAY & CO.

"The Belt Lacing People"

**315 N. Sheldon St.
Chicago, U.S.A.**



40 TYPES OF MEYLAN STOP WATCHES

*A watch for
every purpose*

Ask for FREE folder No. 1-H fully illustrating and describing some 40 types of stopwatches. No salesmen will call.

REPAIR SERVICE

for all kinds of plain and complicated stopwatches. Send to us for estimates; no charge, no obligation.

A. R. & J. E. MEYLAN

"Specialists in timing instruments"

**266-68 West 40th St.,
New York City**



CENTERLESS GRINDING

Straight, cylindrical, double diameter.

Shoulder and profile surfaces.

All kinds of materials

**SCREW MACHINE PRODUCTS, HEAT-TREATED
AND GROUND, IF NECESSARY**

Send Blueprints or Samples for Estimates

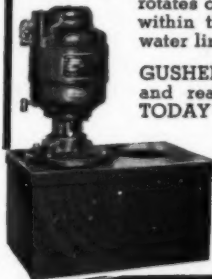
PORTER MACHINE COMPANY

3120 Forrer Ave.

Cincinnati, Ohio

CUT MAINTENANCE COSTS

That's just what GUSHER Coolant Pump Tank Units will do. GUSHER Pumps require no packing, or equivalent, and no bearings are in contact with the liquid being pumped. Motor armature and pump impeller are mounted on a one piece shaft which rotates on two heavy duty ball bearings within the motor—well above the high water line.



GUSHER Units are efficient, dependable and reasonable in cost. Better send TODAY for full information.

THE RUTHMAN MACHINERY CO.

538 E. Front St.,
Cincinnati, Ohio



GRINDING POLISHING SURFACING BURRING BUFFING

all on one machine—the "PRODUCTION" Type R Grinder. Adaptable to large and small jobs—saves space—saves time—improves quality of finish. Simple in design—sturdy, high quality construction assures long care-free life.

Write for complete details and prices

PRODUCTION MACHINE CO.
GREENFIELD, MASS.



CARROLL Universal Dividing Heads

Twenty Years of Popularity.
6-inch, 10½-inch and 12-inch
swing. Furnished either Right
or Left hand type, for all makes
of plain or universal milling
machines.

*See your Dealer or write for
bulletin showing complete line.*

Wm. Carroll & Son

1776 Lexington Ave. (Norwood) Cincinnati, Ohio

COLWELL Tool Post Turrets



Increase output and value of every
lathe . . . save time and money on
repeat operations . . . available for
lathes 9 to 18" (16" size shown)
economical in first cost . . . easily
applied . . . soon pays for itself.

S. G. COLWELL

25 Congress Ave., Providence, R. I.



ROGERS Circular Knife Grinder

Grind Your Circular Knives at Low Cost

For circular or rotary knives up to 20" diameter.
By means of triple slides and swiveling adjust-
ment any degree of bevel can be ground.
Graduated dial insures correct bevel angle set-
ting. Unusually low price. Write for bulletin CC.

S. C. ROGERS & COMPANY

205 Dutton Ave. Buffalo, N. Y.

Type "CC"

Makers of Knife Grinders For 50 Years

GRINDING WHEEL DRESSERS



*Write for
catalog "H"
on Dressers
and Cutters—
no obligation*

THE DESMOND-STEPHAN MFG. CO.

URBANA, OHIO

**100%
Adjustable**



SHOP SPOTLIGHTS

Place Light Where It Is Needed

Models for Office, Factory and
Drafting Room carried in stock.

Send for illustrated catalog

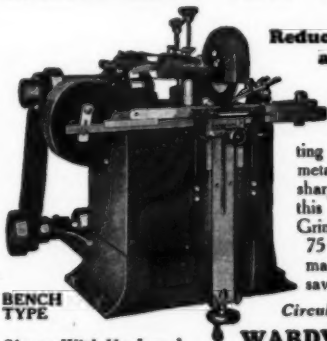
PRICE \$3.50 in single lots
\$3.25 in lots of six
F. O. B. Factory

Chicago Die Casting Mfg. Co.
2502 W. Monroe St., Chicago, Ill.

WARDWELL MODEL E-C Automatic Saw Sharpener COMBINATION

will

**Reduce Saw Purchases
and Increase Your
Cutting Speeds**



Power hack saws,
metal and wood cut-
ting band saws, all types of
metal cutting circular saws,
sharpened automatically in
this improved Wardwell
Grinder, at a speed of 30 to
75 teeth per minute. The
machine accurately sharpens
saws as fine as 32 teeth to 1".

Circular Free Upon Request

**BENCH
TYPE**

*Shown With Hack and
Band Saw Attachments*

WARDWELL MFG. CO.
3165 Fulton Rd. Cleveland, O.



FASTER, MORE POWERFUL GRINDER

**Wt. 5 lbs.
Air Driven**

**38,000 R.P.M.
1/2 H.P.**



Saves grinding time. New Onsrud air-turbine Grinder provides extra power for heavy cuts. Speeds work. Gives extra smooth finish. Always runs cool. Vibrationless. Beautifully balanced. *Circular on request.*

ONSRUD MACHINE WORKS Inc.
Pioneer Builders of High Speed Air Turbines
3906 Palmer St., Chicago, Ill.



L-R TYPE IA

**The Economical
Flexible Coupling**

For all small machines— $\frac{3}{16}$ " to $2\frac{3}{4}$ " bore. Simple—only 3 parts. Non-lubricated. Service - free. **TEST SAMPLE FREE. GIVE R.P.M., H. P. and shaft diameter.**

Lovejoy Flexible Coupling Co.
5026 W. Lake St., Chicago, Ill.

GREENERD ARBOR PRESSES



500 lbs. to
35 tons
pressure

**HYDRAULIC
MOTOR DRIVEN
HAND OPERATED**

Send for circular

**GREENERD
ARBOR PRESS CO.**
NASHUA, N. H.

Beverly Throatless Shear

**Cuts Sheet Metal To Any Shape
Straight-Circular-Irregular**

Two Sizes—No. 1 weighs 16½ lbs., cuts up to 14 gauge. No. 2 weighs 32 lbs., cuts up to 10 gauge.

Priced low—Send for free circular

Beverly Throatless Shear Co.
3007 W. 110th Place Chicago, Ill.



THE NEW RACINE UTILITY SAW



This is the new Wet Cut High Speed Model. Hydraulic feed—6x6" capacity—a remarkable machine at a very moderate price.

Smooth quiet performance

Hydraulic Feed and Control

High Speed and Medium Speed for cutting 90% of all steels.

Swivel vise—quick acting

The last word in simplicity

Also heavy duty Hydraulic Feed machines—10x10"—10x16"—12x12"—13x16"
Racine Shear Cut, Screw Feed Production Saw, Racine Duplex band saws, etc.

"STANDARD THE WORLD OVER"

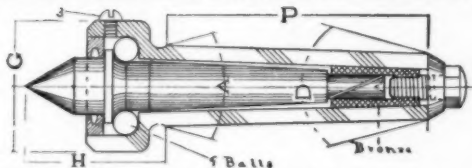
RACINE TOOL & MACHINE COMPANY

1754 STATE ST.

--

RACINE, WIS. U. S. A.

RIGID CENTERS DOUBLY RESILIENT



THE Ordinary Dead Center is much larger and stronger than the live spindle of the Rigid Center, but will break in service much quicker.

At the Cleveland Machine Tool Show, Sept., 35, we found 5 Lathes idle, having broken their own Dead Centers. We started all with Rigid Resilient Live Centers, and they are still running.

Rigid Centers are Axially Resilient, due to their Undercut Necks, and Radially so due to the long taper of their Spindle rear-ends.

RIGID TOOL HOLDER CO.

2000 Witherell St.,

--

Detroit, Michigan

● USE LAYOUT FLUID ●



for general machine shop and tool room use on dies, jigs, fixtures, and machined parts.

With the use of the die blue layout fluid, you do not have to polish the surface of work. Simply wipe surface fairly clean and brush on. **DRIES INSTANTLY.**

Write for free shop sample on your letterhead.

DAYTON ROGERS MANUFACTURING CO.,

Minneapolis, Minn.

WHY NOT MODERNIZE

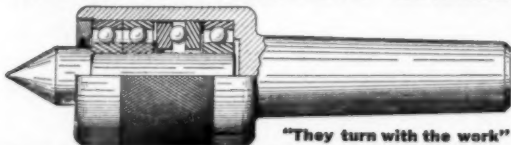


your present equipment, by using the **RUSSELL BORING BAR?** Bores holes from 9/16" to 12" dia. with axis of boring bar parallel to axis of the shank, in one compact tool, with micrometer adjustment.

RUSSELL BORING BAR CO.
MIDDLETOWN, OHIO

Ask for illustrated folder.

"ALIVE" BALL BEARING CENTERS



"They turn with the work"

Modern Machine Corp.,

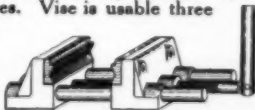
**323 BERRY ST.,
BROOKLYN, N. Y.**

OWN A REAL DRILL VISE

Jaws 5 in. wide, hardened, reversible; open 5 in. Hold round, square and odd shapes. Vise is usable three ways. Satisfaction or no obligation to you.

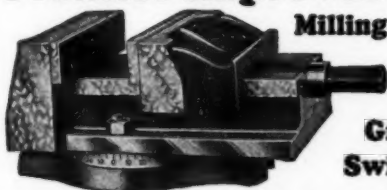
Write for information and folder.

Only \$12.50



JOHNSON TOOL CO., Inc., 65 Massachusetts Avenue,
East Providence, R. I.

Plunket Improved Vises



**Milling Machine
Vise
with
Graduated
Swivel Base**

In Ordering this Vise give size of slot in table

No. 1— 6" jaws, 1 1/4" deep, opens 5" wt. 45 lbs.. \$34.20

No. 2— 10" jaws, 2 1/4" deep, opens 8 1/2" wt. 120 lbs.. 46.80

We make a line of up-to-date Vises, for Drill Presses, Shapers, Milling Machines and Grinders. The picture shows our standard milling machine vise as regularly furnished and carried in stock. All made of best materials. Our other Vises will be shown in following issues.

Prices are net, f.o.b. Chicago. Dealers' inquiries are solicited. Write for illustrated folder today.

J. E. Plunket Machine Co.

1623 W. LAKE ST.,

CHICAGO, ILLINOIS

JANETTE

Motorized Speed Reducers

**FOR SLOW SPEED DRIVES OF
1/20 to 7 1/2 H. P.**



16 DIFFERENT TYPES

A diversified line of precision built speed reducers which can be adapted to almost any slow speed application.

**Rotary Converters — Blower Wheels
Motor Generators.**

Janette Manufacturing Company

552 W. Monroe St.,

Chicago, U. S. A.

New York — Philadelphia — Boston — Pittsburgh — Milwaukee

**FOR A THOUSAND AND
ONE TOUGH HAND JOBS**



**M-B 'Heavy Duty'
AIR GRINDER**

3
RANGES OF SPEED
25,000, 45,000 and
65,000 R. P. M.

3
STAGES OF POWER
with maximum rating
of over $\frac{1}{4}$ H. P.

Furnished with adapter for use in tool post of machine for internal jobs.

M-B "SUPER SPEED" AIR GRINDER

Has revolutionized the hand air operated grinder field. First and only grinder to have spindle speed of 100,000 R. P. M. on 100 pounds air pressure. Amazing power. Weight 8½ ounces.



Write today for details

M-B PRODUCTS

**130 E. Larned Street,
DETROIT, MICH.**

TEMCO PORTABLE ELECTRIC DRILLS

**Will give you more power and
performance at a lower price.**

Made in $\frac{1}{4}$ " , $\frac{5}{16}$ " , $\frac{3}{8}$ " , $\frac{1}{2}$ " , $\frac{5}{8}$ " , $\frac{3}{4}$ " capacities.

Write for complete information and prices.

TEMCO ELECTRIC MOTOR CO.
Leipsic, Ohio

C
E
N
T
E
R
L
E
S
S

**COMMERCIAL
CENTERLESS GRINDING
COMPANY**

**Contract Centerless Grinding
Accuracy—Prompt Service**

6538 Carnegie Ave.,

Cleveland, Ohio

G
R
I
N
D
I
N
G



The "BUTTERFLY" Filing and Die Making Machine

Saves cost in sawing, filing and lapping on dies, gauges, tools, etc.

In highest possible quality of material, precision of machining and nicety of adjustments, the "BUTTERFLY" Filing Machine is as painstaking a product as the finest watch movement—and just as reliable.

NOISELESS IN OPERATION

Made in its entirety under the direct personal supervision and exacting standards of the well recognized and able engineer, Leonard Markels. All parts are interchangeable.

Named "BUTTERFLY" because it is as noiseless in its running as a Butterfly is in its flying.

Write for folder C. and E. L.

HARVEY MANUFACTURING CORP.

MANUFACTURING PLANT AND
EXECUTIVE OFFICES

161 GRAND ST.

:-:

NEW YORK, N. Y.

BEFORE BUYING...



Check These Vital Points:

- 1—Size and shape of bearing block?
- 2—Overhang or distance from shank to boring bars?
- 3—Simple or complicated design?
- 4—Accuracy and readability of dial screw?
- 5—Range of boring jobs?
- 6—Are boring bars, wrenches, etc. included?
- 7—Is the price reasonable?

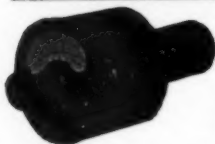
CRALEY OFF-SET BORING HEADS

meet all your requirements. Made in 7 sizes for everything from the smallest holes up to 20" diameter.

Write for full information.

C. C. Craley Mfg. Co., Shillington, Pa.

PYRO RADIATION PYROMETER



STOP spoilage by getting the exact temperature of the work in the furnace—not merely the heat of the furnace.

Direct reading; no calculations; no installation; no maintenance expense. Always ready to tell within 3 seconds any shortcomings in your equipment. Range 1000—3600° F. Bulletins on PYRO OPTICAL, RADIATION, SURFACE, and IMMERSION Pyrometers on request.

THE PYROMETER INSTRUMENT CO.
102-105 Lafayette St., New York



Ask for catalog RW illustrating a great many shapes and sizes of rotary files and rasps.

Ask also for catalog NW, illustrating more than 4000 different precision Swiss files.

GROBET FILE CORP. OF AMERICA
3 Park Place, New York City

Weld With **EISLER WELDERS**

SPOT WELDERS

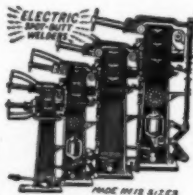
BUTT • WIRE • SEAM

A. C. ARC WELDERS

Welders as low as \$25.00

Submit Samples for Test. No Obligation

EISLER ENGINEERING CO., Inc.
746 So. 13th St. NEWARK, N. J.

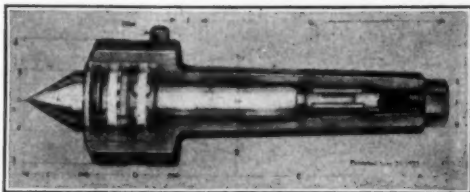


LOOKING FOR TOOLS?

Consult The Classified Finding Index

A BUYERS GUIDE!

NIELSEN HEAVY DUTY LIVE CENTERS



Here is a tool especially adapted for unusually heavy work. It is equipped with a combination of precision type roller and ball bearings to assure the rigidity and maximum capacity for high speed production and longest possible service.

Bearings can be renewed if necessary at slight cost. Tests in your machine shop will quickly demonstrate the precision, low maintenance cost and the durability that have established the "Nielsen" reputation. Write for catalog showing our line of improved live centers and tailstock spindles, with adjustments to take up wear and preload the bearings.

NIELSEN, Inc., Lawton, Mich

AN ALL PURPOSE AIR VELOCITY METER

Instantaneous Direct Reading

The "Alnor" Velometer removes guesswork as to air speed, direction, drafts, dead spots in heating, ventilating and air conditioning work in the open or in the duct system. Measures total and static pressure as well as velocities.



WRITE FOR FOLDER

Illinois Testing Laboratories, Inc.
150 W. Austin Ave. Chicago, Illinois

Classified Finding Index

Abrasive Cut-off Machines

Challenge Mch. Co., Grand Haven, Mich.
Tannetts Works, Grand Rapids, Mich.

Air Cylinders

Hanna Engineering Works, 1763 Elston Ave., Chicago, Ill.
Tomkins-Johnson Co., Jackson, Mich.

Air Valves

Galland-Henning Mfg. Co., Milwaukee, Wis.
Hanna Engineering Works, 1763 Elston Ave., Chicago, Ill.
W. H. Nicholson & Co., Wilkes-Barre, Pa.
Ross Operating Valve Co., Detroit, Mich.

Air Velocity Meters

Illinois Testing Laboratories, 150 W. Austin Ave., Chicago, Ill.

Angle Plates, Adjustable

McMahon Co., Frank, Dayton, Ohio

Arbor Presses

Atlas Press Co., Kalamazoo, Mich.
Falcon Machine Co., Racine, Wis.
Hanna Engineering Works, 1763 Elston Ave., Chicago, Ill.
W. H. Nicholson & Co., Wilkes-Barre, Pa.
Wilson K. R., Buffalo, N. Y.

Arbor Presses, Air Operated

Tomkins-Johnson Co., Jackson, Mich.

Balancing Ways

Anderson Bros. Mfg. Co., Rockford, Ill.

Baling Presses

Galland-Henning Mfg. Co., Milwaukee, Wis.

Band Saw Machines, for Metal

Armstrong-Bloom Mfg. Co., 5741 Bloomingdale Ave., Chicago
Grob Bros., West Allis, Wis.
Delta Mfg. Co., Milwaukee, Wis.
Oliver Machinery Co., Grand Rapids, Mich.
Tannetts Works, Grand Rapids, Mich.
Wells Mfg. Co., Three Rivers, Mich.

Band Saws, Open End

Grob Bros., West Allis, Wis.

Bar Cutters

Buffalo Forge Company, Buffalo, N. Y.

Bearings

Chicago Die Casting Mfg. Co., 2502 W. Monroe St., Chicago, Ill.

Belt Lacing

Armstrong-Bray & Co., 315 N. Sheldon St., Chicago

Belt Senders

Shilow, Inc., 3304 Elston Av., Chicago, Ill.

Belts, V-Type

Delta Mfg. Co., Milwaukee, Wis.

Bench Legs, Steel

Standard Promoted Steel Co., Jenkintown, Pa.

Bending Rolls

Marshalltown Mfg. Co., Marshalltown, Ia.

Bending Machines, Hand and Power

Armstrong-Bloom Mfg. Co., 5741 Bloomingdale Ave., Chicago
Buffalo Forge Company, Buffalo, N. Y.
Lewthwaite Mch. Co., T. H. 311 E. 47th., N. Y.

Bins

Stacklin Corp., Providence, R. I.
Sterling Factory Expt. Co., Providence, R. I.

Blow Guns

Ross Brass Corp., Detroit, Mich.

Blowers

Bruer Elect. Co., 846 Blackhawk St., Chgo.
Buffalo Forge Co., Buffalo, N. Y.
Clements Mfg. Co., 6650 Naragansett, Chicago
General Blower Co., 401 N. Paoria St., Chicago
Standard Electrical Tool Co., Cincinnati, O.

Blowers, Portable Electric

Bruer Electric Co., 846 Blackhawk St., Chgo.
Buffalo Forge Co., Buffalo, N. Y.
Clements Mfg. Co., 6650 Naragansett, Chicago
Shilow, Inc., 3304 Elston Av., Chicago, Ill.

Bolts and Nuts

Triplex Screw Co., Cleveland, Ohio

Books, Engineering and Technical

The Lincoln Electric Co., Cleveland, O.

Boring Bars

Rigid Tool Holder Co., Detroit, Mich.
Russell Boring Bar Co., Middletown, Ohio

Boring Heads

C. C. Cray Mfg. Co., Shillington, Pa.
Flynn Manufacturing Co., Detroit, Mich.
Rickert-Shafer Co., Erie, Pa.

Boring Machines

R & L Tools, Philadelphia, Pa.
Rickert-Shafer Co., Erie, Pa.
Rockford Drilling Mch. Co., Rockford, Ill.

Breaching Machine Tools

Colonial Breach Co., Detroit, Mich.

Broach Sharpening Machines

Colonial Broach Co., Detroit, Mich.

Broaches, Spline and Square

Colonial Broaching Co., Detroit, Mich.
Tearer Machine Co., Cleveland, Ohio

Brakes, Hand and Power

Dreis & Krump Mfg. Co., 7440 So. Loomis Blvd., Chicago, Ill.

Brassers, Electric

Grob Brothers, Grafton, Wis.
Oliver Machinery Co., Grand Rapids, Mich.

Briquetting Machines

Grob Bros., West Allis, Wis.

Buffers, Bench

Standard Electrical Tool Co., Cincinnati, O.
Vonnegut Moulder Corp., Indianapolis, Ind.

Buffers, Pedestal

Vonnegut Moulder Corp., Indianapolis, Ind.

Burs, Steel

White Dental Mfg. Co., 10 E. 46th Street, New York, N. Y.

Bushings, Steel

Acme Industrial Co., 210 N. Laflin St., Chicago, Ill.
Baumbach Mfg. Co., E. A., 1812 So. Kilbourne Ave., Chicago
Universal Eng. Corp., Frankensmith, Mich.

Bushings, Jig

Acme Industrial Co., 210 N. Laflin St., Chicago, Ill.
Colonial Bushings Co., Detroit, Mich.

Cable, Electric

The Lincoln Electric Co., Cleveland, O.

Cable, Welding

The Lincoln Electric Co., Cleveland, O.

Calipers

Comet Tools, Inc., 30 Union Square, New York, N. Y.
Boherr Co., George, 122 Lafayette St., New York, N. Y.

Call Systems

Wysocki & Staff, Inc., 642 Washington Blvd., Chicago

Cams, Alloy Steel

Modern Collet & Mch. Co., Monroe, Mich.

**P
O
W
E
R
F
U
L**



RED HEAD

ETCHERS and DEMAGNETIZERS

New d. c. and a. c. models now available.

SEND FOR LATEST CIRCULAR

**PRINTZ
ELECTRIC CO.**
14595 Kentucky
Detroit Mich.

-PATENTED-

3 TOOLS IN 1

**Etches-Demagnetizes-
Anneals**

THE LUMA is a compact, handy, portable tool—an electric pencil for marking hardened and ground steel—a thorough demagnetizer—a carbon point for light annealing and soldering. Easy to use—plugs in any light socket. Effects surprising savings.



Luma Marking and
Demagnetizing **SIMULTANEOUSLY**

Write for full data—including 5 day **FREE TRIAL OFFER**

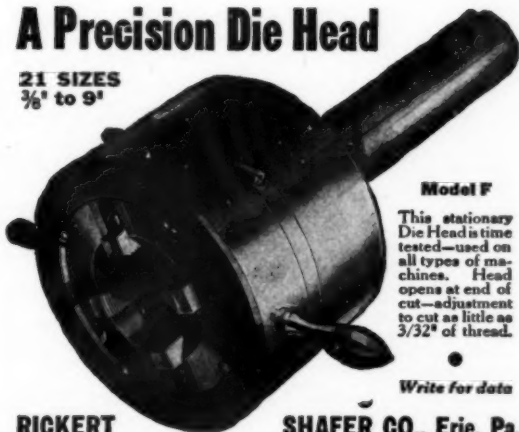
LUMA ELECTRIC EQUIPMENT CO.
DEPT. H.—Main P. O. Box No. 132—TOLEDO, OHIO

Classified Finding Index

- Cams**
Banner Mfg. Co., 1973 Cloybourn Av., Chgo.
- Cap Screws**
Triplex Screw Co., Cleveland, Ohio
- Centering Machines**
Cullman Wheel Co., 1369 Altgeld St., Chgo.
- Centers, Lathe**
Modern Mchs. Corp., Brooklyn, N. Y.
Nielsen, Inc., Lawton, Mich.
Rigid Tool Holder Co., Detroit, Mich.
- Chains, Silent and Roller**
Chicago Gear Works, 769 W. Jackson Blvd., Chicago
Cullman Wheel Co., 1369 Altgeld St., Chgo.
- Chamfering Machines, Automatic**
Grant Mfg. & Mchs. Co., Bridgeport, Conn.
- Chasers, Thread**
Jones & Lamson Mchs. Co., Springfield, Vt.
- Chucking Fingers**
Modern Collet & Mchs. Co., Ecorse, Mich.
Morrison Mach. Products, Inc., Elmira, N. Y.
- Chucks**
Etico Tool Co., 384 Johnson Av., Brooklyn, N. Y.
Hewer Mfg. Co., 1635 N. Paulina, Chicago
Universal Eng. Corp., Frankensmuth, Mich.
- Chucks, Air**
Tomlin-Johnson Co., Jackson, Mich.
- Chucks, Automatic**
Proconier Safety Chuck Co., 14 S. Clinton St., Chicago
- Chucks, Collet**
Apex Machine Co., Dayton, Ohio
Proconier Safety Chuck Co., 14 S. Clinton St., Chicago
Tomlin-Johnson Co., Jackson, Mich.
- Chucks, Drill and Tap**
Apex Machine Co., Dayton, Ohio
Errington Mech. Labo., Staten Island, N. Y.
Etico Tool Co., Brooklyn, N. Y.
Hartford Special Mch. Co., Hartford, Conn.
Nielsen, Inc., Lawton, Mich.
Proconier Safety Chuck Co., 14 S. Clinton St., Chicago
Scully-Jones & Co., 1905 S. Rockwell, Chicago
- Chucks, Magnetic**
Brown & Sharpe Mfg. Co., Providence, R. I.
- Chucks, Quick Change**
Proconier Safety Chuck Co., 14 S. Clinton St., Chicago
- Clutches, Friction**
Conway Clutch Co., Cincinnati, Ohio
- Cold Saws**
Burke Machine Tool Co., Connant, Ohio
- Collets for all Lathes and Millers**
Apex Machine Co., Dayton, Ohio
Hardinge Brothers, Inc., Elmira, N. Y.
Modern Collet & Mchs. Co., Ecorse, Mich.
Sutton Tool Co., Detroit, Mich.
Universal Eng. Corp., Frankensmuth, Mich.
- Collets for Auto. and Hand Screw Machines**
Morrison Mach. Products, Inc., Elmira, N. Y.
Sutton Tool Co., Detroit, Mich.
- Collets, Spring**
Modern Collet & Mchs. Co., Ecorse, Mich.
Morrison Mach. Products, Inc., Elmira, N. Y.
- Collet Tubes**
Modern Collet & Mchs. Co., Ecorse, Mich.
Sutton Tool Co., Detroit, Mich.
- Comparators**
Federal Products Corp., Providence, R. I.
Jones & Lamson Mchs. Co., Springfield, Vt.
- Contract Work Wanted**
Burke Machine Tool Co., Connant, Ohio
- Counterbores**
Scully-Jones & Co., 1905 S. Rockwell, Chicago
- Couplings, Belt**
Armstrong-Bray & Co., 315 N. Sheldon St., Chicago
- Couplings, Compression Shaft**
W. H. Nicholson & Co., Wilkes-Barre, Pa.
- Couplings, Flexible**
Ajax Flexible Coupling Co., Westfield, N. Y.
Chicago Die Casting Mfg. Co., 2505 W. Monroe St., Chicago, Ill.
W. H. Nicholson & Co., Wilkes-Barre, Pa.
LovaJoy Flex. Coupling Co., 5026 Lake, Chgo.
- Couplings, Friction Clutch**
Conway Clutch Co., Cincinnati, Ohio
- Couplings, Shaft**
W. H. Nicholson & Co., Wilkes-Barre, Pa.
- Cut-off Machines**
Modern Machine Tool Co., Jackson, Mich.
Hammann Machine Co., Machine, Wis.
- Cut-off Saws**
Oliver Machinery Co., Grand Rapids, Mich.
Tannowitz Works, Grand Rapids, Mich.
- Cutters**
Putnam Tool Co., Detroit, Mich.
Progressive Tool & Cutter Co., Ferndale, Mich.
Tomlin-Johnson Co., Jackson, Mich.
- Cutters, Milling**
Brown & Sharpe Mfg. Co., Providence, R. I.
Modern Machine Tool Co., Jackson, Mich.
Scully-Jones & Co., 1905 S. Rockwell, Chicago
- Cutters, Gear**
Michigan Tool Co., Detroit, Mich.
- Demagnetizers**
Loma Electric Equipment Co., Toledo, Ohio
L. W. Chark Co., Toledo, Ohio
Pristis Electric Co., Detroit, Mich.
- Dies, Blank and Forming**
American Tool Works, Inc., Hartford, Conn.
Hamilton Tool Company, Hamilton, Ohio
Rickert-Shafer Co., Erie, Pa.
- Die Casting Machines**
Bavill, H. L., Inc., Los Angeles, Calif.
- Die Castings**
Chicago Die Casting Mfg. Co., 2505 W. Monroe St., Chicago, Ill.
- Die Filers**
Continental Mchs. Specialists, Minneapolis
Grob Brothers, Grafton, Wis.
- Die Heads**
Apex Machine Co., Dayton, Ohio
- Die Making Machines**
Armco Co., Milwaukee, Wis.
Continental Mchs. Specialists, Minneapolis
Grob Brothers, Grafton, Wis.
Harvey Mfg. Co., 161 Grand St., New York
Oliver Machinery Co., Grand Rapids, Mich.
Oliver Instrument Co., Adrian, Mich.
Pratt & Whitney, Hartford, Conn.
- Die Sets**
Baumbach Mfg. Co., S. A., 1812 So. Wabash Ave., Chicago

A Precision Die Head

21 SIZES
 $\frac{3}{8}$ " to 9"



Model F

This stationary Die Head is time tested—used on all types of machines. Head opens at end of cut—adjustment to cut as little as $\frac{3}{32}$ " of thread.

Write for data

RICKERT

SHAFFER CO., Erie, Pa.

Let Your Losses Stop with the Broken Tap



Don't halt production and pay skilled mechanics to dig it out, often injuring the work.

A Handy Walton Tap Extractor

Will forestall these unnecessary losses. Insert its flutes into the broken tap, twist the end—an apprentice can do it in a jiffy—and the tap backs out without injury to the threads.

Made in two, three and four flute styles.

Let us send it to you for a sixty-day free trial

The Walton Company
95 Allyn St., Hartford, Conn.

Classified Finding Index

Dies, Hole Punching
Strippit Corp., Buffalo, N. Y.

Dies, Notching
Strippit Corp., Buffalo, N. Y.

Dividing Heads
Wm. Carroll & Son, Norwood, Cincinnati, O.
Master Machine & Tool Co., North Kansas City, Mo.

Dowel Pins, Steel
Aune Industrial Co., 210 N. Laflin St., Chicago, Ill.
Baumbach Mfg. Co., E. A., 1812 So. Kilbourne Ave., Chicago

Draftsmen Tables
Hamilton Mfg. Co., Two Rivers, Wis.

Dressers, Emery Wheel
Diamond-Stephan Mfg. Co., Urbana, O.
Oliver Motorcraft Corp., 2832 S. Wabash, Chicago

Drills and Taps
Elton Tool Co., 594 Johnson Av., Brooklyn, N. Y.

Drill Bushings
Aune Industrial Co., 210 N. Laflin St., Chicago, Ill.
Universal Eng. Corp., Frankmouth, Mich.

Drills, Electric
Skilaw, Inc., 2804 Elston Av., Chicago, Ill.
Speed-Way Mfg. Co., 1822 So. 62nd Ave., Clear, Ill.
Standard Electrical Tool Co., Cincinnati, O.
Tanner Electric Motor Co., Leipsic, Ohio
Wodack Electric Tool Corp., 4639 W. Huron St., Chicago, Ill.

Drill Grinders
Black Diamond Saw & Machine Works, Inc., Natick, Mass.

Drill Holder Bushings
Banner Mfg. Co., 1873 Clybourn Av., Chicago

Drill Jigs, Special
Hesser Mfg. Co., 1680 N. Paulina, Chicago

Drill Jigs, Universal
Henderson & Kaye, Batavia, Ill.
Hesser Mfg. Co., 1680 N. Paulina, Chicago

Drilling Attachments, High Speed
Graham Manufacturing Co., Providence, R. I.

Drilling Machines, Bench
Atlas Press Co., Kalamazoo, Mich.
Ayer Mfg. Co., Chicago Heights, Ill.
Buffalo Forge Company, Buffalo, N. Y.
Delta Mfg. Co., Milwaukee, Wis.
High Speed Hammer Co., Rochester, N. Y.
Rockford Drilling Mch. Co., Rockford, Ill.

Drilling Machines, Multiple Spindle
Buffalo Forge Co., Buffalo, N. Y.
Canedy-Otto Mfg. Co., Chicago Heights, Ill.
Rockford Drilling Mch. Co., Rockford, Ill.

Drilling Machines, Portable Electric
Skilaw, Inc., 2804 Elston Av., Chicago, Ill.
Speed-Way Mfg. Co., 1822 So. 62nd Ave., Clear, Ill.
Strand Co., N. A., 6001 N. Wolcott Street, Chicago, Ill.
Tanner Electric Motor Co., Leipsic, Ohio
White Dental Mfg. Co., 10 E. 40th Street, New York, N. Y.

Drilling Machines, Post
Buffalo Forge Co., Buffalo, N. Y.

Drilling Machines, Radial
Western Machine Tool Wks., Holland, Mich.

Drilling Machines, Sensitive
Atlas Press Co., Kalamazoo, Mich.
Ayer Mfg. Co., Chicago Heights, Ill.
Buffalo Forge Company, Buffalo, N. Y.
Burke Machine Tool Co., Connecticut, Ohio

Drilling Machines, Wall Type
Ayer Mfg. Co., Chicago Heights, Ill.

Drilling Machines, Vertical
Atlas Press Co., Kalamazoo, Mich.
Buffalo Forge Company, Buffalo, N. Y.
Rockford Drilling Mch. Co., Rockford, Ill.

Drives, Lathes
Cutlman Wheel Co., 1809 Altgeld St., Chicago
Hardinge Brothers, Inc., Elmira, N. Y.

Electrical Instruments
Illinois Testing Laboratories, Inc., 188 W. Austin Ave., Chicago

Elevating Tables
Hamilton Tool Company, Hamilton, Ohio
Midwest Tool & Engineering Co., Dayton, O.

Emery Wheel Dressers and Cutters
Diamond-Stephan Mfg. Co., Urbana, Ohio
Oliver Motorcraft Corp., 2832 S. Wabash, Chicago
Western Tool & Mfg. Co., Springfield, O.

End Mills
Progressive Tool & Cutter Co., Farmdale, Mich.
Putnam Tool Co., Detroit, Mich.

Etching Machines, Electric
Brewster Co. William, 50 Church St., N. Y. C.
Luma Electric Equipment Co., Toledo, Ohio
Prints Electric Co., Detroit, Mich.

Exhaust Blowers
Buffalo Forge Co., Buffalo, N. Y.

Experimental Work
American Tool Works, Inc., Hartford, Conn.

Feeder Tubes
Sutton Tool Co., Detroit, Mich.

Feed Fingers
Morrison Mach. Products, Inc., Elmira, N. Y.

Feed Fingers for Auto. Screw Mchs.
Modern Collet & Machine Co., Ecorse, Mich.
Sutton Tool Co., Detroit, Mich.

Files
Grabet File Co., 3 Park Place, New York City

Files, Rotary
Ford Mfg. Co., Davenport, Iowa
White Dental Mfg. Co., 10 E. 40th Street, New York, N. Y.

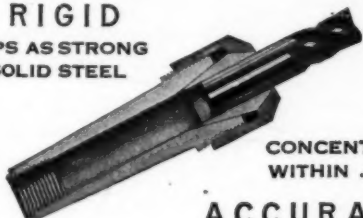
Filing Machines
Centennial Mch. Specialties, Minneapolis
Grob Bros., West Allis, Wis.
Harvey Mfg. Co., 161 Grand St., New York
Oliver Instrument Co., Adrian, Mich.

Filing Room Equipment
Wardwell Manufacturing Co., Cleveland, O.

Flexible Couplings
Ajax Flexible Coupling Co., Westfield, N. Y.
Lorajoy Flex. Coupling Co., 3028 Lake, Chicago

UNIVERSAL COLLET CHUCKS RIGID

GRIPS AS STRONG
AS SOLID STEEL



CONCENTRIC
WITHIN .001

ACCURATE

WRITE FOR CATALOG

UNIVERSAL ENGINEERING CO.
FRANKENMUTH, MICHIGAN

ANDERSON Improved Balancing Ways



Four Chilled iron discs
rotate on sensitive
special bearings.

No Leveling Required

A simple and excellent
device for balancing
straightening and
truing.

Write for Full Information

Anderson Bros. Mfg. Co.
1907 Kishwaukee Street,
ROCKFORD, ILLINOIS

Swing	Greatest Distance Between Standards	Capacity in lbs.
20 in.	20 in.	1,000
40 in.	30 in.	2,000
60 in.	30 in.	2,000
72 in.	66 in.	5,000
96 in.	88 in.	10,000

Classified Finding Index

Flexible Shafts and Accessories

Mall Tool Co., 7742 S. Chicago Ave., Chgo.
Wysenbeck & Staff, Inc., 642 Washington
Bldg., Chicago

Flexible Shaft Couplings

Lovely Flex. Coupling Co., 6036 Lake, Chgo.
W. H. Nicholson & Co., Wilkes-Barre, Pa.

Flexible Shaft Machinery

Haskins Co., E. G., 4654 W. Fulton, Chgo.
Mall Tool Co., 7742 S. Chicago Ave., Chgo.
Pratt & Whitney, Hartford, Conn.
Walker-Turner Co., Plainfield, N. J.
Wysenbeck & Staff, Inc., 642 Washington
Bldg., Chicago

Fine Lathes

Marshalltown Mfg. Co., Marshalltown, Ia.

Fine Welders

Marshalltown Mfg. Co., Marshalltown, Ia.

Forgings, Hollow Bored

American Hollow Forging Co., Erie, Pa.

Forming Tools

Ranner Mfg. Co., 1379 Clybourn Ave., Chgo.
Michigan Tool Co., Detroit, Mich.

Furniture, Machine Shop

Standard Processed Steel Co., Jenkintown,
Penns.
Western Tool & Mfg. Co., Springfield, O.

Gages

Chicago Dial Indicator Co., 130 Wacker
Drive, Chicago
Federal Products Corp., Providence, R. I.
United Precision Products Co., 4618 W.
Huron St., Chicago

Gages, Pin, Plug, Ring and Snap

American Tool Works, Inc., Hartford, Conn.
Standard Gage Co., Poughkeepsie, N. Y.
United Precision Products Co., 4618 W.
Huron St., Chicago

Gages, Pressure

Marshalltown Mfg. Co., Marshalltown, Ia.

Gages, Special

Standard Gage Co., Poughkeepsie, N. Y.

Gages, Taper

Hartford Special Mch. Co., Hartford, Conn.

Gears

Ahart Gear & Mch. Co., 4022 W. 16th St.,
Cicero, Ill.
Chicago Gear Wks., 700 W. Jackson, Chgo.
Taylor Machine Co., Cleveland, Ohio

Generators

Chicago Electric Co., 1339 W. 22nd St.,
Chicago, Ill.
Janette Mfg. Co., 552 W. Monroe St., Chgo.

Graze Cups

Elmer Brass Corp., Detroit, Mich.

Grinders, Air

M. H. Products, Detroit, Mich.
Onored Machine Works, Inc., 2906 Palmer
St., Chicago

Grinders, Bench

Balmer Electric Co., St. Louis, Mo.
Vonnegut Moulder Corp., Indianapolis, Ind.

Grinders, Disc

Oliver Machinery Co., Grand Rapids, Mich.
Wysenbeck & Staff, Inc., 642 Washington
Bldg., Chicago

Grinders, Electric

Chicago Wheel & Mfg. Co., 1101 W. Monroe
St., Chicago, Ill.
Dremel Mfg. Co., Racine, Wis.
Silloway, Inc., 3304 Elston Av., Chicago, Ill.
Standard Electrical Tool Co., Cincinnati, O.

Grinders, Flexible Shaft

Haskins Co., E. G., 4654 Fulton St., Chgo.
Mall Tool Co., 7742 S. Chicago Ave., Chicago
N. A. Strand & Co., 5001 N. Wolcott, Chgo.

Grinders, Hand

Chicago Wheel & Mfg. Co., 1101 W. Monroe
St., Chicago, Ill.
Dremel Mfg. Co., Racine, Wis.
Dumore Co., Racine, Wis.
M. H. Products, Detroit, Mich.
Silloway, Inc., 3304 Elston Av., Chicago, Ill.

Grinders, Heavy Duty

Queen City Machine Tool Co., Cincinnati, O.
Vonnegut Moulder Corp., Indianapolis, Ind.

Grinders, High Speed

Chicago Wheel & Mfg. Co., 1101 W. Monroe
St., Chicago, Ill.
Dremel Mfg. Co., Racine, Wis.
Dumore Co., Racine, Wis.
Mall Tool Co., 7742 S. Chicago Ave., Chicago
M. H. Products, Detroit, Mich.
Walker-Turner Co., Plainfield, N. J.

Grinders, Pedestal Electric

Balmer Electric Co., St. Louis, Mo.
Queen City Machine Tool Co., Cincinnati, O.

Grinders, Swing Frame

Vonnegut Moulder Corp., Indianapolis, Ind.

Grinders and Polishers, Belt

Oliver Machinery Co., Grand Rapids, Mich.

Grinding Attachments, Drill

Atlas Press Co., Kalamazoo, Mich.
Carlson Mfg. Co., C. H., Minneapolis, Minn.
Oliver Instrument Co., Adrian, Mich.

Grinding, Centerless (Contract)

A-1 Screw Machine Products Co., 4618 W.
Huron St., Chicago, Ill.
Commercial Centerless Grinding Co., 6528
Carnegie Ave., Cleveland, Ohio
Fetter Machine Co., Cincinnati, O.

Grinding Machine Attachments

Berkley Engineering Co., Cleveland, O.

Grinding Machines, Belt

Armco Co., Milwaukee, Wis.
Production Machine Co., Greenfield, Mass.
Wells Sales Corp., 94 Warren St., New York

Grinding Machines, Cutter, Reamer and Tool

Brown & Sharpe Mfg. Co., Providence, R. I.
Gallmeyer & Livingston Co., Grand Rapids,
Mich.
National Machine Tool Co., Racine, Wis.
Oliver Instrument Co., Adrian, Mich.
Rogers & Co., Buffalo, N. Y.

Grinding Machines, Drill

Black Diamond Saw & Machine Works, Inc.,
Natick, Mass.
Gallmeyer & Livingston Co., Grand Rapids,
Mich.

IT TURNS WITH THE WORK



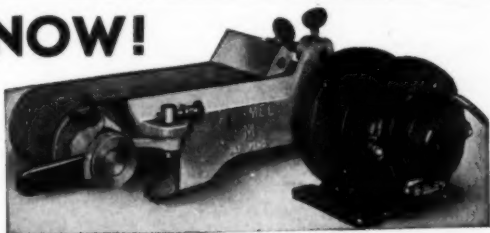
STURDIMATIC Live Centers Eliminate Chatter and Friction

Save driving power and do better work with Sturdimatic heavy duty, high speed live centers for lathes, grinders and milling machines. Lowest possible overhang.

*Sent on free
trial. Write
for information*

STURDIMATIC TOOL CO.
5224 Third Ave., Detroit, Mich.

NOW!



An Inexpensive **ABRASIVE BAND GRINDER—** *"Built Like A Machine Tool"*

The Hormel-M Grinder is sturdily built with a supporting leg under the grinding table to eliminate vibration and tipping due to pressure on belt. Ball bearing throughout, equipped with Alemite lubrication, complete with grease gun. Write for illustrated folder on this and other styles and sizes.

HORMEL-M GRINDER
WALLS SALES CORP., 96 Warren St., New York, N. Y.

Classified Finding Index

Grinding Machines, Floor

Queen City Machine Tool Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.

Grinding Machines, Internal

Dumore Co., Racine, Wis.
National Machine Tool Co., Racine, Wis.
Oursrud Machine Works, Inc., 3906 Palmer St., Chicago

Grinding Machines, Portable Electric

Chicago Wheel & Mfg. Co., 1101 W. Monroe St., Chicago, Ill.
Dromel Mfg. Co., Racine, Wis.
Dumore Co., Racine, Wis.
Haskins Co., R. O. 6054 W. Fulton, Chgo.
Hall Tool Co., 7742 S. Chicago Ave., Chicago
National Machine Tool Co., Racine, Wis.
Pratt & Whitney, Hartford, Conn.
Strand Co., N. A., 5001 N. Wolcott St., Chgo.
White Dental Mfg. Co., 10 S. 40th Street, New York, N. Y.

Grinding Machines, Surface

Gallmeyer & Livingston Co., Grand Rapids

Grinding Machines, Tap

Gallmeyer & Livingston Co., Grand Rapids

Grinding Machines, Tool

Rogers & Co., Buffalo, N. Y.

Grinding Machines, Universal

Brown & Sharpe Mfg. Co., Providence, R. I.

Grinding Wheels

Chicago Wheel & Mfg. Co., 1101 W. Monroe St., Chicago, Ill.

Grinding Wheels, Mounted

Chicago Wheel & Mfg. Co., 1101 W. Monroe St., Chicago, Ill.

Grinding Wheels On Shanks

Chicago Wheel & Mfg. Co., 1101 W. Monroe St., Chicago, Ill.

Hack Saw Blades

Armstrong-Bloom Mfg. Co., 5741 Bloomingdale Ave., Chicago

Hack Saw Machines

Armstrong-Bloom Mfg. Co., 5741 Bloomingdale Ave., Chicago
Rasmussen Machine Co., Racine, Wis.
Wells Mfg. Corp., Three Rivers, Mich.

Hammers, Timbers

Whitner Mfg. Co., W. A., Rockford, Ill.

Hammers, Mallets and Malls

Chicago Hawhide Mfg. Co., 1200 Elston Av., Chicago, Ill.

Hammers, Riveting

High Speed Hammer Co., Rochester, N. Y.

Hammers, Soft Faced

Greene Tread & Co., 109 Duane St., New York, N. Y.

Hand PUNCHES

Whitney Mfg. Co., W. A., Rockford, Ill.

Hand Saws, Portable Electric

Skilaw, Inc., 3804 Elston Av., Chicago, Ill.

Hand Screw Machines, Precision

Hardinge Brothers, Inc., Elmira, N. Y.

Hangers

Chicago Die Casting Mfg. Co., 2502 W. Monroe St., Chicago, Ill.

Heads, Boring

Plynn Manufacturing Co., Detroit, Mich.

Hobs

Michigan Tool Co., Detroit, Mich.

Hole Cutters

Wyssbeck & Staff, Inc., 642 Washington Blvd., Chicago

Hollow Screws

Standard Pressed Steel Co., Jonkintown, Pa.

Hydraulic Valves

Galland-Henning Mfg. Co., Milwaukee, Wis.
Hanna Engineering Works, 1768 Elston Ave., Chicago, Ill.
W. H. Nicholson & Co., Wilkes-Barre, Pa.

Index Centers

Brown & Sharpe Mfg. Co., Providence, R. I.
Wm. Carroll & Son, Norwood, Cincinnati, O.

Indicator Holders

Chicago Dial Indicator Co., 180 Wacker Drive, Chicago

Indicators, Dial

Chicago Dial Indicator Co., 180 Wacker Drive, Chicago
Standard Gage Co., Inc., Poughkeepsie, N. Y.

Indicating Dials

Federal Products Corp., Providence, R. I.

Indicators, Speed

Greene Tread & Co., 109 Duane St., New York, N. Y.

Indicators, Surface Test

Boich Mfg. Co., J. E., Dayton, Ohio

Jigs and Fixtures

American Tool Works, Inc., Hartford, Conn.
Hamilton Tool Company, Hamilton, Ohio
Hartford Special Mch. Co., Hartford, Conn.
Henderson & Kaye, Batavia, Ill.
Slawek Tool Co., Detroit, Mich.

Keyseating Machines

Burr & Soe, John T., Brooklyn, N. Y.

Knife Grinders

Rogers & Co., Buffalo, N. Y.

Knurls and Holders, for Turrets

Graham Manufacturing Co., Providence, R. I.

Lathe Centers

Modern Mch. Corp., Brooklyn, N. Y.
Nielsen, Inc., Lawton, Mich.
Maid Tool Holder Co., Detroit, Mich.
Sturdimatic Tool Co., Detroit, Mich.

Lathe Drives

Berkley Engineering Co., Cleveland, O.
Cultman Wheel Co., 1359 Altgeld St., Chgo.
Hardinge Brothers, Inc., Elmira, N. Y.

Lathes, Automatic

Jones & Lamson Mch. Co., Springfield, Vt.

Lathes, Bench

Atlas Press Co., Kalamazoo, Mich.
Delta Mfg. Co., Milwaukee, Wis.
Hardinge Brothers, Inc., Elmira, N. Y.
Rivett-Lathes & Grinder Inc., Brighton, Boston
South Bend Lathe Works, South Bend, Ind.

Lathes, Back Geared

Rivett Lathe & Grinder, Inc., Brighton, Boston
South Bend Lathe Works, South Bend, Ind.

Lathes, Brake Drum

South Bend Lathe Works, South Bend, Ind.

Lathes, Engine

South Bend Lathe Works, South Bend, Ind.
Western Machine Tool Wks., Holland, Mich.

Lathes, Polishing and Buffing

Standard Electrical Tool Co., Cincinnati, O.

Lathes, Precision Bench

Hardinge Brothers, Inc., Elmira, N. Y.
South Bend Lathe Works, South Bend, Ind.

THE NEWEST DEVELOPMENT IN METAL CUTTING MACHINES

Full automatic—capacity 10"x10" and 6"x6". The only machine that will make angular cuts automatically.

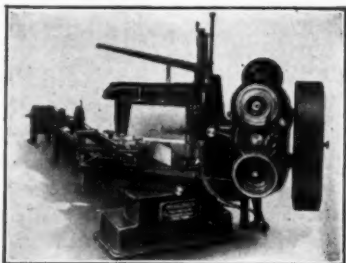
Stops when desired number of pieces have been cut.

Length of cut is gauged by scale without end stop.

Swivels on base for angular cutting.

Three speeds by V belt.

Also built for manual operation.



Send for circulars containing complete information.

RASMUSSEN MCH. CO., RACINE, WIS.

ESSEX LUBRICATING DEVICES ● Efficient - Dependable ●

When you need lubricating equipment—from automatic lubricators to the tiniest grease cup—call on ESSEX. We can supply it, and 37 years of experience is at your disposal in solving any lubricating problem.

Write for Your Copy of ESSEX Catalog No. 7

ESSEX BRASS CORPORATION
2000 Franklin St., Detroit, Mich.



Classified Finding Index

- Lathes, Precision Bench Screw Cutting**
Hardinge Brothers, Inc., Elmira, N. Y.
South Bend Lathe Works, South Bend, Ind.
- Lathes, Screw Cutting**
South Bend Lathe Works, South Bend, Ind.
- Lathes, Speed**
Schaefer Machine Co., Cincinnati, Ohio
- Lathes, Toolroom**
South Bend Lathe Works, South Bend, Ind.
- Lathes, Turret**
Jones & Lamson Mch. Co., Springfield, Vt.
- Layout Plates**
Challenge Mch. Co., Grand Haven, Mich.
- Layout Tables**
Parsons-Merritt Co., Van Dyke, Mich.
- Leader Pins, Steel**
Acme Industrial Co., 419 N. Carpenter St., Chicago, Ill.
- Leather Belting, All Types**
Chicago Rawhide Mfg. Co., 1200 Elston Av., Chicago, Ill.
- Leather Oil Retainers**
Chicago Rawhide Mfg. Co., 1200 Elston Av., Chicago, Ill.
- Leather Pkg., Hydraulic & Pneumatic**
Chicago Rawhide Mfg. Co., 1200 Elston Av., Chicago, Ill.
- Live Lathe Centers**
Modern Mch. Corp., Brooklyn, N. Y.
Sturdivant Tool Co., Detroit, Mich.
- Lubricators, Air**
Rexx Brass Corp., Detroit, Mich.
Norgren, C. A., Denver, Colorado
- Lubricators, Automatic**
Gits Bros. Mfg. Co., 1800 S. Kilbourn, Chgo.
Greene Tweed & Co., 109 Duane St., New York, N. Y.
H. B. Products Co., Detroit, Mich.
Norgren Co., C. A., Denver, Colo.
- Machine Lights**
Master Lamp Co., Detroit, Mich.
- Mandrels, Expanding**
W. H. Nicholson & Co., Wilkes-Barre, Pa.
Western Tool & Mfg. Co., Springfield, O.
- Mandrels, Saw and Grinding**
Chicago Die Casting Mfg. Co., 2502 W. Monroe St., Chicago, Ill.
- Marking Machines**
Schmidt, Geo. T., Inc., 1802 Halle Plain Ave., Chicago, Ill.
- Milling Attachments**
Brown & Sharpe Mfg. Co., Providence, R.I.
Burke Machine Tool Co., Cincinnati, Ohio
Wm. Carroll & Son, Norwood, Cincinnati, O.
Master Machine & Tool Co., North Kansas City, Mo.
- Milling Machine Attachments**
Berkeley Engineering Co., Cleveland, O.
- Milling Machines, Bench**
Burke Machine Tool Co., Cincinnati, Ohio
Hardinge Brothers, Inc., Elmira, N. Y.
- Milling Machines, Precision Bench**
Hardinge Brothers, Inc., Elmira, N. Y.
- Milling Machines, Hand**
Burke Machine Tool Co., Cincinnati, Ohio
- Milling Machines, Universal**
Brown & Sharpe Mfg. Co., Providence, R.I.
- Milling Machines, Plain**
Brown & Sharpe Mfg. Co., Providence, R.I.
Burke Machine Tool Co., Cincinnati, Ohio
- Motors**
Chicago Electric Co., 1830 W. 22nd St., Chicago, Ill.
Janette Mfg. Co., 552 W. Monroe St., Chgo.
- Motors, Small Universal**
Dromel Mfg. Co., Racine, Wis.
Speedway Mfg. Co., Chicago, Ill.
- Motor-Generator Sets**
Chicago Electric Co., 1830 W. 22nd St., Chicago, Ill.
Janette Mfg. Co., 552 W. Monroe St., Chgo.
- Motor Drives, Universal**
Berkeley Engineering Co., Cleveland, O.
Cushman Wheel Co., 1060 Altgeld St., Chgo.
Steege Machinery Co., 18 S. Clinton St., Chicago, Ill.
- Motor Starters**
The Lincoln Electric Co., Cleveland, O.
- Moulds & Lodies, Hammer and Vise**
Johnson Tool Co., East Providence, R. I.
- Multiple Oilers**
Gits Bros. Mfg. Co., 1800 S. Kilbourn, Chgo
- Nibbling Machines**
Libert Machine Co., Green Bay, Wis.
National Machine Tool Co., Racine, Wis.
- Nitrided Products**
Universal Eng. Corp., Frankensmuth, Mich.
- Oil Cups**
Rexx Brass Corp., Detroit, Mich.
Gits Bros. Mfg. Co., 1800 S. Kilbourn, Chgo
- Oil Gauges**
Rexx Brass Corp., Detroit, Mich.
Gits Bros. Mfg. Co., 1800 S. Kilbourn, Chgo.
- Oil and Grease Seals**
Gits Bros. Mfg. Co., 1800 S. Kilbourn, Chgo.
- Operating Valves**
Galland-Henning Mfg. Co., Milwaukee, Wis.
Ross Operating Valve Co., Detroit, Mich.
- Packing, Hydraulic**
Chicago Rawhide Mfg. Co., 1200 Elston Av., Chicago, Ill.
- Packings, Steam**
Greene Tweed & Co., 109 Duane St., New York, N. Y.
- Pillow Blocks**
Chicago Die Casting Mfg. Co., 2502 W. Monroe St., Chicago, Ill.
- Pins and Lacing for Belting**
Chicago Rawhide Mfg. Co., 1200 Elston Av., Chicago, Ill.
- Pins, Leader And Dowel**
Acme Industrial Co., 419 N. Carpenter St., Chicago, Ill.
Baumbach Mfg. Co., E. A., 1812 So. Kilbourn Ave., Chicago
- Pipe Cutters**
Ridge Tool Co., Elvira, Ohio
- Pipe Vises**
Ridge Tool Co., Elvira, Ohio
- Pipe Wrenches**
Ridge Tool Co., Elvira, Ohio
- Plates, Surface and Bench**
Master Tappet Co., Newark, N. J.
- Pin Gages**
United Precision Products Co., 4018 W. Huron St., Chicago
- Point Thinning Machines**
Oliver Instrument Co., Adrian, Mich.
- Press Brakes**
Drels & Krump Mfg. Co., 7440 Loomis Blvd., Chicago, Ill.

UNIVERSAL DRILL BUSHINGS

MADE TO A. S. A. SIZES
MEET ALL YOUR REQUIREMENTS
WITH A 10% SAVING IN COST



INTERCHANGEABLE
LONG-LIFE
EASILY
REPLACEABLE
PROMPT SERVICE



- WRITE FOR CATALOG -

UNIVERSAL ENGINEERING CO.
FRANKENMUTH, MICHIGAN

—GEARS—

**Spur — Helical — Worm —
Bevel — Miter, Etc.**

We do broaching and all kinds of grinding.

We carry a large stock of spline and square broaches which on small orders saves you money.

Prompt service and quality has retained a large list of customers for 25 years.

The Taylor Machine Company
1919 E. 61st St., Cleveland, Ohio

Classified Finding Index

Press Feeds

Littell Machine Co., F. J., 4158 Ravenswood Ave., Chicago, Ill.
Wittick Mfg. Co., 4809 W. 24th Place, Chgo.

Presses, Arbor

Atlas Press Co., Kalamazoo, Mich.
Famco Machine Co., Racine, Wis.
Greenard Arbor Press Co., Nashua, N. H.
W. H. Nicholson & Co., Wilkes-Barre, Pa.
Wilson, E. R., Buffalo, N. Y.

Presses, Bench

Rockford Iron Works, Rockford, Ill.

Presses, Broaching

Greenard Arbor Press Co., Nashua, N. H.

Presses, Foot

Famco Machine Co., Racine, Wis.
Rockford Iron Works, Rockford, Ill.

Presses, Forming

Marshalltown Mfg. Co., Marshalltown, Ia.

Presses, Inclined

Federal Press Co., Elkhart, Indiana
Marshalltown Mfg. Co., Marshalltown, Ia.
Rockford Iron Works, Rockford, Ill.
Ross Co., David J., Benton Harbor, Mich.

Presses, Power

Dreis & Krump Mfg. Co., 7440 Loomis Blvd., Chicago, Ill.
Federal Press Co., Elkhart, Ind.
Rockford Iron Works, Rockford, Ill.

Presses, Punch

Dreis & Krump Mfg. Co., 7440 Loomis Blvd., Chicago, Ill.
Lowthwaite Mfg. Co., T. H., 311 E. 47th, N. Y.
Marshalltown Mfg. Co., Marshalltown, Ia.
Ross Co., David J., Benton Harbor, Mich.

Presses, Sheet Metal

Federal Press Co., Elkhart, Indiana

Pullers, Gear and Wheel

Armstrong-Blum Mfg. Co., 5741 Bloomingdale Ave., Chicago

Pulleys, Die Cast

Chicago Die Casting Mfg. Co., 2602 W. Monroe St., Chicago, Ill.
Conway Clutch Co., Cincinnati, O.

Pulleys, Steel and Wood

Delta Mfg. Co., Milwaukee, Wis.

Pulleys, Vacuum Cup

Vacuum Cup Metal Pulley Co., Detroit

Pumps

Brown & Sharpe Mfg. Co., Providence, R. I.
Fulco Specialties Co., Blanchester, O.
Galland-Hanning Mfg. Co., Milwaukee, Wis.

Pumps, Coolant

Ruthman Machinery Co., Cincinnati, Ohio
Tomkins-Johnson Co., Jackson, Mich.

Pumps, Lubricant

Ruthman Machinery Co., Cincinnati, Ohio

Punch Press Guards

Ross Co., David J., Benton Harbor, Mich.

Punch, Shear and Bender, Hand

Armstrong-Blum Mfg. Co., 5741 Bloomingdale Ave., Chicago
Buffalo Forge Co., Buffalo, N. Y.

Punches and Dies

Lowthwaite Mfg. Co., T. H., 311 E. 47th, N. Y.
Whitney Mfg. Co., W. A., Rockford, Ill.

Punches, Hand

Armstrong-Blum Mfg. Co., 5741 Bloomingdale Ave., Chicago
Buffalo Forge Company, Buffalo, N. Y.
Lowthwaite Mfg. Co., T. H., 311 E. 47th, N. Y.
Whitney Metal Tool Co., Rockford, Ill.
Whitney Mfg. Co., W. A., Rockford, Ill.

Pusher Tubes

Modern Collet & Machine Co., Ecorse, Mich.

Pyrometers

Illinois Testing Laboratories, Inc., 150 W. Austin Ave., Chicago
Pyrometer Instrument Co., 102-105 Lafayette St., New York City

Pyrometers, Optical

Pyrometer Instrument Co., 102-105 Lafayette St., New York City

Pyrometers, Portable & Stationary

Illinois Testing Laboratories, Inc., 150 W. Austin Ave., Chicago, Ill.
Pyrometer Inst. Co., 102 Lafayette, N. Y. C.

Pyrometers, Surface

Illinois Testing Laboratories, 150 W. Austin Ave., Chicago, Ill.
Pyrometer Instrument Co., 102-105 Lafayette St., New York City

Racks, Bar Stock

Wm. S. Yoke Supply Co., Canton, O.

Rivets, Tubular and Split

Chicago Rivet & Machine Co., 1855 S. 54th St., Cicero P. O., Chicago, Ill.

Riveters, Automatic Feed

Chicago Rivet & Machine Co., 1855 S. 54th St., Cicero P. O., Chicago, Ill.

Riveters, Multiple Spindle

Grant Mfg. & Mch. Co., Bridgeport, Conn.

Riveters, Pneumatic

Grant Mfg. & Mch. Co., Bridgeport, Conn.
Hanna Engineering Works, 1705 Elston Ave., Chicago, Ill.

Riveting Machines

Grant Mfg. & Mch. Co., Bridgeport, Conn.
Hanna Engineering Works, 1705 Elston Ave., Chicago, Ill.
High Speed Hammer Co., Rochester, N. Y.
Linsley Bros. Co., Bridgeport, Conn.

Riveting Machines, Tubular and Split

Chicago Rivet & Machine Co., 1855 S. 54th St., Cicero P. O., Chicago, Ill.

Red Cutters

Armstrong-Blum Mfg. Co., 5741 Bloomingdale Ave., Chicago
Lowthwaite Mfg. Co., T. H., 311 E. 47th, N. Y.

Rolls, Forming

Peck, Stew & Wilcox Co., Southington, Conn.

Router Bits

Putnam Tool Co., Detroit, Mich.

Sanders

Standard Electrical Tool Co., Cincinnati, O.

Saws

Black Diamond Saw & Machine Works, Inc., Natick, Mass.

Saws, Electric Hand

Delta Mfg. Co., Milwaukee, Wis.

Saw Sharpening Machines

Rogers & Co., Buffalo, N. Y.
Wardwell Manufacturing Co., Cleveland, O.

Sawing Machines

Continental Mfg. Specialties, Minneapolis
Delta Mfg. Co., Milwaukee, Wis.
Grob Brothers, Grafton, Wis.
Hassmussen Machine Co., Racine, Wis.
Wells Mfg. Co., Three Rivers, Mich.

Scraping Mchs., Hand & Pneumatic

Anderson Bros. Mfg. Co., Rockford, Ill.

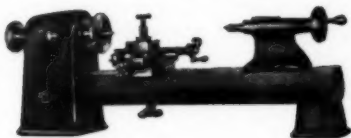
Screw Drivers, Electric

Haskins Co., R. O., 4804 W. Fulton Chgo.

Screw Machine Parts

Modern Collet & Machine Co., Ecorse, Mich.

NEW AMES ENCLOSED HEAD



Precision Lathe with Ball Bearing Spindle and Transitorq drive. Length 36"—Swing 8 3/8"—Collet Capacity 1"—Motor 1/2 h. p.—Double V-Belt Drive.

Send for Bulletin.

B. C. AMES COMPANY
WALTHAM, MASS.

6314

GET THE GENUINE



VERNIER CALIPER



\$6.50

**Postage, 10¢
Strong leather
pocket case,
50¢ extra**

**A COMPLETE
LINE** of fine measuring tools. Shop agents wanted. Write for the catalog.

Measuring Accurately to .001", Outside, Inside and Depth. Range, 3-5 1/16".

Readings in .001", 1/128", and in millimeters.

Never before was such close, dependable precision measuring, such versatile application and downright handiness, such beautiful finish, offered at so low a price.

There can be no substitute for accuracy. Get the genuine Mauser Vernier Caliper. Order now—ten days trial money-back offer.

GEORGE SCHERR COMPANY
122 Lafayette St., New York, N. Y.

Classified Finding Index

Screw Machine Tools

Banner Mfg. Co., 1873 Clybourn Av., Chgo.

Screw Machines, Automatic

Brown & Sharpe Mfg. Co., Providence, R.I.

Set Screws

Standard Pressed Steel Co., Jenkintown, Pa.
Triplex Screw Co., Cleveland, Ohio

Set-Up Appliances

Standard Shop Equip. Co., Inc., Phila., Pa.

Shafts, Flexible

E. G. Hankins Co., 4654 W. Fulton, Chicago
Fratt & Whitney, Hartford, Conn.
Strand Co., N. A., 6081 N. Wolcott St., Chgo.
White Dental Mfg. Co., 10 E. 40th Street, New York, N. Y.

Shafts, Hangers & Boxes

Delta Mfg. Co., Milwaukee, Wis.

Shafts, Steel

American Hollow Spring Co., Erie, Pa.

Shapers

Atlas Press Co., Kalamazoo, Mich.
Western Mchs. Tool Wks., Holland, Mich.

Shaping Machines

Oshorne & Sexton Machy. Co., Columbus, O.
Western Mchs. Tool Wks., Holland, Mich.

Shears, Bevel

Marshalltown Mfg. Co., Marshalltown, Ia.

Shears, Hand

Armstrong-Bloom Mfg. Co., 6741 Bloomingdale Ave., Chicago
Beverly Throatless Shear Co., 3007 W. 110th Place, Chicago, Ill.
Leathwaite Machine Co., Y. H., 311 E. 47th St., New York
The National Machine Tool Co., Racine, Wis.
Whitney Metal Tool Co., Rockford, Ill.

Shears, Power

Buffalo Forge Co., Buffalo, N. Y.
Drels & Krump Mfg. Co., 7440 Loomis Blvd., Chicago, Ill.
Libert Machine Co., Green Bay, Wis.
Pock, Stow & Wilcox Co., Southington, Conn.

Shears, Slitting

Beverly Throatless Shear Co., 3007 W. 110th Place, Chicago, Ill.
Buffalo Forge Co., Buffalo, N. Y.
Drels & Krump Mfg. Co., 7440 Loomis Blvd., Chicago, Ill.
National Machine Tool Co., Racine, Wis.

Shears, Splitting

Marshalltown Mfg. Co., Marshalltown, Ia.

Shears, Throatless

Beverly Throatless Shear Co., 3007 W. 110th Place, Chicago, Ill.
Marshalltown Mfg. Co., Marshalltown, Ia.

Sheet Metal Machinery

Libert Machine Co., Green Bay, Wis.
Pock, Stow & Wilcox Co., Southington, Conn.
Ward Machinery Co., 664 Washington, Chicago, Ill.
Whitney Mfg. Co., W. A., Rockford, Ill.

Shop Lights

Chicago Die Casting Mfg. Co., 2502 W. Monroe St., Chicago, Ill.
Master Lamp Co., Detroit, Mich.
Vimco Mfg. Co., Buffalo, N. Y.

Shop Stands

Pasman Brothers, 796 W. Washington St., Chicago, Ill.
Standard Pressed Steel Co., Jenkintown, Penna.

Sine Tables

Ketchum Engineering Co., Detroit, Mich.

Spacing Collars

Scully-Jones & Co., 1906 S. Rockwell, Chicago

Special Tools and Machinery

American Tool Works, Inc., Hartford, Conn.

Speed Reducers

Abart Gear & Mchs. Co., 4032 W. 16th St., Chicago, Ill.
Armco Co., Milwaukee, Wis.
Chicago Gear Wks., 769 W. Jackson, Chgo.
Culman Wheel Co., 1365 Alameda St., Chgo.
Janette Mfg. Co., 652 W. Monroe St., Chgo.

Speed Saws, Universal

Wysenbeck & Staff, Inc., 642 Washington Blvd., Chicago

Spinning Lathes, Metal

Oliver Machinery Co., Grand Rapids, Mich.

Spools & Nuts for Auto. Screw Mchs.

Button Tool Co., Detroit, Mich.

Split Rivets

Chicago Rivet & Machine Co., 1855 S. 64th St., Cicero P. O., Chicago, Ill.

Split Rivet Setters, Automatic Feed

Chicago Rivet & Machine Co., 1855 S. 64th St., Cicero P. O., Chicago, Ill.

Spot Welding Machines, Speed.

Armco Co., Milwaukee, Wis.
Eisler Engineering Co., Inc., Newark, N. J.
Interstate Machinery Co., Chicago, Ill.
Pier Equip. Mfg. Co., Denton Harbor, Mich.

Sprockets

Culman Wheel Co., 1365 Alameda St., Chgo.

Stake Riveters

Marshalltown Mfg. Co., Marshalltown, Ia.

Stampings

Hamilton Tool Co., Hamilton, Ohio
Kreuger & Hudspeth, Cincinnati, O.

Steel Stamps

Colonial Washings Co., Detroit, Mich.

Stop Watches

Morlan, A. R. & J. E., 286 W. 40th St., N. Y. C.

Storage Racks

Stackbin Corp., Providence, R. I.
Sterling Factory Equip. Co., Providence, R. I.
Yoke Supply Co., Canton, O.

Straightening Machines

Whitney Metal Tool Co., Rockford, Ill.

Stripping Units

Stripit Corp., Buffalo, N. Y.

Stud Setters

Apex Machine Co., Dayton, O.
Titan Tool Co., Fairview, Penna.

Surface Plates

Master Tapper Co., Newark, N. J.

Tables, Drawing

Hamilton Mfg. Co., Two Rivers, Wis.

Tables, Elevating

Midwest Tool & Engineering Co., Dayton, O.

Tap Extractors

Walton Co., Hartford, Conn.

Tap Holders

Proceder Safety Check Co., 14 S. Clinton St., Chicago
Scully-Jones & Co., 1906 S. Rockwell, Chicago

Tapping Machines

Etico Tool Co., Brooklyn, N. Y.
Hankins Co., E. G., 4654 W. Fulton, Chgo.
Master Tapper Co., Newark, N. J.
Richert-Shefer Co., Erie, Pa.
Western Mchs. Tool Wks., Holland, Mich.



Hartford Taper Gauge

Locates Inaccuracies Instantly

When turning tapers on end mills, profile cutters, twist drills, reamers, lathes, etc., accuracy is all important. The Hartford Taper Gauge enables the workman to tell instantly whether a taper is right.

Simple — Inexpensive — Reliable

Any inaccuracy down to .001" can be instantly detected. Adjustable over a wide range—from No. 0 to No. 14 taper.

Write for Complete Details and Price

*We also Build Machinery on a Contract Basis
And Design and Develop Special
Automatic Machinery*

GEARS AND CAMS CUT TO ORDER

Hartford Special Machinery Co.

285 Homestead Ave.,

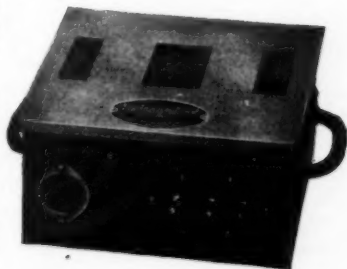
Hartford, Conn.

NEW Combination Etchograph and De-Magnetool

For Marking and
Demagnetizing Iron
and Steel Tools or
Parts.

**A Tool Room
Necessity for
Identifying
and for
Prolonging
Life of Cutting
Tools**

Write for Literature



William Brewster & Co., Inc.
42 Church St.,

New York, N. Y.

Classified Finding Index

Tapping Attachments

Errington Mech. Lab., Staten Island, N. Y.
 Ritco Tool Co., Brooklyn, N. Y.
 Hashline Co., 4654 W. Fulton, Chgo.
 Precision Safety Chuck Co., 14 S. Clinton St., Chicago, Ill.
 Western Mch. Tool Wks., Holland, Mich.

Tapping Jigs, Universal

Henderson & Kaye, Batavia, Ill.
 Hesser Mfg. Co., 1608 N. Paulina St., Chgo.

Tapping Machines and Attachments

Burke Machine Tool Co., Gannasat, Ohio
 Ritco Tool Co., 894 Johnson Av., Brooklyn, N. Y.
 Precision Safety Chuck Co., 14 S. Clinton St., Chicago, Ill.
 Whitney Metal Tool Co., Rockford, Ill.

Terminal Lugs, Solderless

Kroeger & Hudspeth, Cincinnati, O.

Thermometers, Resistance Type

Illinois Testing Laboratories, Inc., 180 West Austin Av., Chicago, Ill.

Threading Machines, Automatic

Grant Mfg. & Mch. Co., Bridgeport, Conn.
 Jones & Lamson Mch. Co., Springfield, Vt.
 Robert-Shafer Co., Erie, Pa.

Threading Tools

Armstrong Bros. Tool Co., 808 N. Francisco Av., Chicago
 Ridge Tool Co., Elvira, Ohio
 Rivett Lathe & Grinders, Brighton, Boston

Timing Instruments

Maylan, A. R. & J. E., 206 W. 40th St., N. Y. C.

Tool Heads, Universal

Precision Tool Co., Bridgeport, Conn.

Tool Post Turners

Colwell, S. G., Providence, R. I.

Tool Holders

Armstrong Bros. Tool Co., 808 N. Francisco Av., Chicago
 Michigan Tool Co., Detroit, Mich.
 Rigd Toolholder Co., Detroit, Mich.
 Western Tool & Mfg. Co., Springfield, O.

Tools, Abrasive

White Dental Mfg. Co., 10 E. 40th Street, New York, N. Y.

Tools, Boring

Armstrong Bros. Tool Co., 808 N. Francisco Av., Chicago

Tools, Lathe and Planer

Armstrong Bros. Tool Co., 808 N. Francisco Av., Chicago

Tools, Machinists'

Armstrong Bros. Tool Co., 808 N. Francisco Av., Chicago
 Brown & Sharpe Mfg. Co., Providence, R. I.

Transfer Punches

McMahon Co., Frank, Dayton, Ohio

Transmissions

Looney Machine & Mfg. Co., Warren, O.

Tube Fittings

Essex Brass Corp., Detroit, Mich.

Tube Flanging Machines

Grant Mfg. & Wks. Co., Bridgeport, Conn.

Tubular Rivet Setters, Automatic Fd.

Chicago Rivet & Machine Co., 1855 S. 64th St., Cicero P. O., Chicago, Ill.

Tungsten Carbide Tools

Michigan Tool Co., Detroit, Mich.

Turning Tools

Banner Mfg. Co., 1879 Clybourn Av., Chgo.
 R & L Tools, Philadelphia, Pa.

Universal Drill Jigs

Henderson & Kaye, Batavia, Ill.
 Hesser Mfg. Co., 1608 N. Paulina St., Chgo.

Universal Joints

American Tool Works, Inc., Hartford, Conn.
 Apex Machine Co., Dayton, O.
 Chicago Gear Works, 700 W. Jackson Blvd., Chicago

Used and Rebuilt Machinery

Aaron Machinery Co., 178 Lafayette St., New York City
 Abbott Tool & Equipment Co., 20 S. Clinton St., Chicago, Ill.
 Belyea Co., Inc., 150 W. 18th St., New York, N. Y.
 Bennett-Hafkin Machine Tool Corp., 20 Church St., New York, N. Y.
 Bernstein & Co., Geo. M., 125 S. Clinton, Chgo.
 Hesser Mfg. & Mch. Co., Springfield, Ill.
 Bradley Machinery Co., Detroit, Mich.
 Brandt Mch., Sales, Pittsburgh, Pa.
 Brown Machinery Co., St. Louis, Mo.
 Brownell Machinery Co., Providence, R. I.
 Burns Mch. Co., P. W., Milwaukee, Wis.
 Cincinnati Mch. & Supply Co., Cincinnati, O.
 Clark Machinery Co., Cleveland, Pa.
 Clinton Mch. Sales Co., Detroit, Mich.
 Crown Silver Co., Inc., Brookline, Mass.
 Dalitz, Harry, Cleveland, O.
 Davis Machinery Co., Toledo, O.
 Delta Equipment Co., Philadelphia, Pa.
 Eastern Machinery Co., Cincinnati, O.
 Emerson, Louis E. & Co., 1761 Elston Ave., Chicago, Ill.
 Essley Machinery Co., E. L., 531 W. Evergreen Ave., Chicago, Ill.
 Falk Mill Supply Co., Inc., Rochester, N. Y.
 General Blower Co., 401 N. Fort St., Chgo.
 Goldman, Harvey H., Detroit, Mich.
 Hackett J. Lee, Detroit, Mich.
 Hill, Clarke & Co., 645 W. Washington Blvd., Chicago, Ill.
 Hewarth Mch. Co., Inc., C. C., Detroit, Mich.
 Hyman & Sons, Joseph, Philadelphia, Pa.
 Indianapolis Machinery & Supply Company, Indianapolis, Ind.
 Industrial Mch. Co., Indianapolis, Ind.
 Inland Mch. Co., 40 S. Clinton St., Chgo.
 International Machinery Co., Detroit.
 Interstate Mch. Co., 189 S. Clinton, Chgo.
 Iroquois Machinery Co., Buffalo, N. Y.
 Johnson & Sons Machinery Co., Wm. C., St. Louis, Mo.
 Jones Machine Tool Co., Cincinnati, Ohio
 Kinsey Co. E. & Cincinnati, Ohio
 Lafayette Tool & Supply Co., 238 Lafayette St., N. Y. C.
 Lang Machinery Co., Pittsburgh, Pa.
 Long Machinery Co., Boston, Mass.
 Loras, J. L., Bridgeport, Conn.
 McDonald Machinery Co., St. Louis
 Machinery Dealers, Inc., New Haven, Conn.
 Warr-Galbreath Mch. Co., Pittsburgh, Pa.
 Midwest Equipment Co., 420 W. Lake St., Chicago, Ill.
 Miles Machinery Co., Saginaw, W. S., Mich.
 Molter Machinery Co., Charles L., 120 S. Clinton St., Chicago, Ill.
 Morey & Co., 45 Mill St., Astoria, Long Island, N. Y.
 Norton-Broadway Machinery Co., Cincinnati, Ohio
 Nutmeg State Mch. Corp., New Haven, Conn.
 O'Brien Machinery Co., Philadelphia, Ohio
 Ohio Mch. & Supply Co., Cincinnati, Ohio
 Ott Machinery Sales Co., Detroit, Mich.
 Osborne & Sexton Mch. Co., Columbus, O.
 Partridge, Arthur S., St. Louis, Mo.
 Passman Brothers, 705 W. Washington St., Chicago, Ill.
 Pactor Machinery Co., Grand Rapids, Mich.
 Prutton Mch. Co., D. H., Cleveland, Ohio

SPEED LATHES

Timesavers for your plant



Hand, foot or air operated 3-jaw chucks.

Hand or Foot operated collet, sizes from $\frac{1}{64}$ " to $1\frac{1}{4}$ ".

1, $\frac{1}{2}$ or $\frac{1}{4}$ h. p. AC 2 speed motor.

Steel bed plate or hand rest optional.

Send For Cir. 351 Today

Just the tools for Finishing, Polishing or Lapping of small parts.

THE very tools you've been looking for to produce those small parts quickly and economically. Eliminates tying up larger equipment with its slow and make-shift production methods. Built-in features of this new tool allow you to handle rod, tube and chuck stock better than ever before.

Schauer Machine Co.
2060 Reading Rd., Cincinnati, O.

For Your RIVETING

LINLEY NOISELESS ROTARY RIVET SPINNING MACHINES



Assure Peak Production and Lower Maintenance. Rigid and Powerful. Bench and Floor Types. Motor or Belt Driven. There is a Linley machine for every riveting job.

Send samples of your work for riveting, cost of equipment, and true estimates on production.

"Built to Last—Riveting Fast"

LINLEY BROTHERS CO.

11-A Montauk Street, Bridgeport, Conn.

Classified Finding Index

Used and Rebuilt Machinery—Cont.

Reliance Machinery Sales Co., Pittsburgh, Pa.
Rosenkrantz & Welsch, 2809 A Singer Bldg., New York City
Scott-Bansbach Mchry. Co., 4807 W. 20th St., Chicago
Segal Machinery Co., 117 S. Clinton St., Chicago, Ill.

Service Co., Cleveland, Ohio
Simmons Machine Tool Corp., Albany, N. Y.
Standard Mchry. Co., Grand Rapids, Mich.
Strong, Carlisle & Hammond Co., Cleveland
Surplus Material & Machinery Co., Detroit
Surplus Stock & Mchry. Co., Inc., 618 W. Lake St., Chicago, Ill.
Toledo Machinery Exchange, Toledo, O.
United Mchry. & Supply Co., St. Louis, Mo.
Victor Machinery Co., 180 S. Clinton Street, Chicago, Ill.
Victor Machinery Exchange 251 Centre St., New York, N. Y.

Vine, R. A., Detroit, Mich.
Wein Mchry. Sales, Chas. E., Detroit, Mich.
Warner Elevator Mfg. Co., Cincinnati, O.
Wertman Machinery Co., Cleveland, Ohio
West Penn Machinery Co., Pittsburgh, Pa.
White Mchry. Co., A. D., 108 N. Jefferson St., Chicago

Wigglesworth Machinery, T. R., Cleveland, O.
Wigglesworth Mchry. Co., Cambridge, Mass.
Winternitz & Co., Samuel I., 38 So. Dearborn St., Chicago, Ill.

Wolnick Mchry. Sales, S. S., Clinton, Chicago

Vacuum Cleaners, Portable

Brauer Elec. Co., 545 Blackhawk St., Chgo.

Vacuum Cleaners, Industrial

Brauer Elec. Co., 545 Blackhawk St., Chgo.

Valves, Air

Hanna Engineering Works, 1703 Eleton Ave., Chicago, Ill.
Ross Operating Valve Co., Detroit, Mich.

Valves

Galland-Henning Mfg. Co., Milwaukee, Wis.
Hanna Engineering Works, 1703 Eleton Chicago, Ill.

Ross Operating Valve Co., Detroit, Mich.

Valves, Foot, Lever & Solenoid

Hanna Engineering Works, 1703 Eleton Chicago, Ill.
Nicholson & Co., W. H., Wilkes-Barre, Pa.

Ross Operating Valve Co., Detroit, Mich.

Valves, Operating

Hanna Engineering Works, 1703 Eleton Chicago, Ill.

Ross Operating Valve Co., Detroit, Mich.

Tomlin-Johnson Co., Jackson, Mich.

Vises, Combination Drill Table

Modern Machine Tool Co., Jackson, Mich.

Vises, Drilling Machine

Armstrong-Stom Mfg. Co., 5741 Bloomingdale Ave., Chicago
Armstrong Bros. Tool Co., 508 N. Francisco Av., Chicago

Desmond Stephan Mfg. Co., Urbana, O.

Graham Manufacturing Co., Providence, R. I.

Heuser Mfg. Co., 1828 N. Paulina St., Chgo.

Knu-Vine Products Co., Detroit, Mich.

L. W. Chuck Co., Toledo, Ohio

Martin Tool & Die Works, J. E., Springfield, O.

Modern Machine Tool Co., Jackson, Mich.

National Machine Tool Co., Racine, Wis.

Odin Universal Corp., 110 S. Dearborn, Chgo.

Walker-Turner Co., Inc., Plainfield, N. J.

Yost Mfg. Co., Meadville, Penna.

Vises, Drill

Johnson Tool Co., East Providence, R. I.
Modern Machine Tool Co., Jackson, Mich.

Punket Mchry. Co., 1828 W. Lake St., Chgo.

Vises, Machinists

Desmond Stephan Mfg. Co., Urbana, Ohio
Knu-Vine Products Co., Detroit, Mich.

L. W. Chuck Co., Toledo, Ohio

Odin Universal Corp., 110 S. Dearborn, Chgo.

Western Tool & Mfg. Co., Springfield, O.

Yost Mfg. Co., Meadville, Penna.

Vises, Milling Machine

Graham Manufacturing Co., Providence, R. I.
Hartford Special Mchry. Co., Hartford, Conn.
Knu-Vine Products Co., Detroit, Mich.
L. W. Chuck Co., Toledo, Ohio
Odin Universal Corp., 110 S. Dearborn, Chgo.
Punket Mchry. Co., 1828 W. Lake St., Chgo.
Yost Mfg. Co., Meadville, Penna.

Vises, Precision

Odin Universal Corp., 110 S. Dearborn, Chgo.

Vises, Shaper

Graham Manufacturing Co., Providence, R. I.
Odin Universal Corp., 110 S. Dearborn, Chgo.
Punket Mchry. Co., 1828 W. Lake St., Chgo.

Vises, Special

Modern Machine Tool Co., Jackson, Mich.

Welders, Arc

Hobart Brothers, Troy, Ohio
Lincoln Electric Co., Cleveland, Ohio

Welders, Portable

Hobart Brothers, Troy, Ohio

Welding Accessories

The Lincoln Electric Co., Cleveland, O.

Welding Electrodes and Holders

The Lincoln Electric Co., Cleveland, O.

Welding Generators, Arc

The Lincoln Electric Co., Cleveland, O.

Welding Goggles

The Lincoln Electric Co., Cleveland, O.

Welding Lens, Arc

The Lincoln Electric Co., Cleveland, O.

Welding Machines, Electric Spot

Armco Co., Milwaukee, Wis.
Eisler Engineering Co., Inc., Newark, N. J.
Hobart Brothers, Troy, Ohio
Interstate Machinery Co., Chicago, Ill.
Fier Equipment Mfg. Co., Benton Harbor, Mich.

Welding Machines and Equipment, E. I. Arc

The Lincoln Electric Co., Cleveland, O.

Welding Machines, Resistance

Armco Co., Milwaukee, Wis.
Eisler Engineering Co., Inc., Newark, N. J.
Lincoln Electric Co., Cleveland, Ohio
Fier Equipmt. Mfg. Co., Benton Harbor, Mich.

Wheel Pullers

Armstrong-Bray & Co., 215 N. Sheldon St., Chicago

Wheels, Grinding

Chicago Wheel & Mfg. Co., 1101 W. Monroe St., Chicago, Ill.

Woodworking Machinery

Tannehill Works, Grand Rapids, Mich.

Worm Drives

Michigan Tool Co., Detroit, Mich.

Wrenches, Reversible

Greene Tweed & Co., 100 Duane St., New York, N. Y.

Every Shop Operating an Emery Wheel



Price Complete

\$4.75

**Needs a
'Tru-Dress'**

**The Perfect Emery
Wheel Dresser.**

Forms special shaped
wheels of any size.
Trues any wheel into
balance.

Dresses out ridges and out-of-roundness with results equal to that of a diamond.

Smoothens out rough or uneven sides of emery wheels. A handy tool for truing clogged or dull wheels on flexible shaft grinders.

An indispensable tool in any tool room or machine shop.

Durable — Simple — Easy to Handle — Lasting

*Your mill supply house can furnish the "Tru-Dress" or
order direct. Send for illustrated circular.*

Oliver MotorCraft Corp., 2532 S. Wabash Ave.,
CHICAGO, ILLINOIS

T. H. L. FRONT LEVER BENCH PUNCH

Malleable iron body; working parts hardened. Steel shaft and plunger. Die cannot lose alignment with punch. All parts interchangeable. Built for hardest, toughest work. Weight 70 lbs.

We can supply extra Punches at 20 cents each; extra Dies at 30 cents.

Capacity $\frac{1}{2}$ " holes through $\frac{3}{8}$ " steel;
 $\frac{13}{32}$ " through $\frac{1}{2}$ " steel. Can also be
made for up to $\frac{3}{8}$ " holes through thinner
metal. Punches and dies in stock from
 $\frac{3}{32}$ " to $\frac{1}{2}$ " by 64ths. Price with one
punch and die \$37.00.

Immediate shipment from stock

**T. H. LEWTHWAITE
MACHINE CO.**

(Est. 1890)

311 E. 47th St., NEW YORK



FREE BUYERS' SERVICE

To All of Our Readers

If you will list below the new or used metal-working machines or machine shop equipment for which you are in the market, and mail it to us, we shall be glad to broadcast it to all of our advertisers. Replies will come from them, not from us.

But if you prefer that we put you in direct touch with the manufacturers of any particular machine tool or other metal-working equipment, let us know and we will endeavor to locate them for you.

Name

Address

We are in the market for

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Mail to Hitchcock Publishing Co., 508 So. Dearborn St., Chicago, Ill.

Used and Rebuilt Machinery Section

Lists of Used and Rebuilt Machinery, either For Sale, Wanted, or For Exchange, set in uniform style, will be published in the Classified Section at the rate of 60 cents a line across the page, each issue, plus \$3.00 for name and address. Minimum charge, \$6.00. No display permitted.

Write directly to those offering the machines for sale, for prices and full descriptions. If what you seek is not advertised, use the enclosed printed form to make known your wants in either new or used machinery and the publisher will gladly pass them along to the advertisers.

FOR SALE BY

Clark Machinery Co., 1235 St. Clair Ave., Cleveland, Ohio

SCREW MACHINES

Six No. 2 Warner & Swasey screw machines, rebuilt and complete.

FOR SALE BY

General Blower Co., . . . 401 N. Peoria St., Chicago, Ill.

BLOWERS—FANS—EXHAUSTERS.

For Dust Collecting — Ventilating.

Oil and gas burners, cupolas, furnaces, etc.

Roots—Connersville and centrifugal blowers.

What are your blower requirements?

FOR SALE BY

Standard Machinery Co., 347 Indiana Ave., Grand Rapids, Mich.

Automatic, 1½" Gridley, model F.

Boring mill, 42" Hullard vertical.

Boring mill, 34" Colburn vertical.

Boring mill, 24" Lucas horizontal.

Drill, 20" Hoeter 4-spindle gang.

Drill, Baker 3" heavy duty.

Furnaces, Detroit Electric (4).

Lathe, 9" Porter-Cable mfg.

Miller, No. 14 Rockford.

Miller, model C-1 Becker hvy. vert.

Pipe machine, 6" Williams.

Presses, Waterbury Farrel s. s. 7"

shaft, 30" between uprights (3).

Shaper, 15" Hendey F. G. (2).

FOR SALE BY

Aaron Machinery Co., 176 Lafayette Street, New York, N. Y.

Drills, radial, 2-4" American.

Engraving machines, all makes.

Grinders 24"x72" Landis plain \$550.

Ironworker, Pels No. 13..... 825.

Lathe, Putnam 26"x14" q. c. 825.

Lathes, Hendey 16"x8", 10" 375.

Lathe, turret, geared head, 14" 550.

Millers, Becker vertical..... 375.

Millers, Van Norman, Cincinnati.

Pipe machine, 6" Oster, m. d. 325.

Power presses, hammers, all sizes.

Punch, Buffalo steel..... 125.

Shaper, 16" Davis, s. p. d., g. b. 350.

Shaper, 7" Rhodes..... 150.

FOR SALE BY

W. E. Brandt Mach'y. Sales, 513 Empire Bldg., Pittsburgh, Pa.

Bolt cutter, 2" Landis head.

Brake, 10"x3/16" D. & K., all steel.

Grinder, 20"x96" Farrell roll.

Keyseater, No. 2 Baker, 2" keyway.

Planer 36"x36"x10, Liberty 2 heads.

Radial drill, 5' Prentice.

Shaper, 26" s. p. d.

Shear, 10"x14 ga. Niagara No. 2120.

Shear, Quickwork, 60" throat 14 ga.

Turret, 24" Gisholt, t. a.

USED AND REBUILT MACHINERY

FOR SALE BY

Ott Machinery Sales, Inc.,

Automatics, Cleveland Model A 5, 14, 24, & 42; Fay 14"x19"; Acme Nos. 53, 54, and 55, Gridley Model F 4 spdl, 1", 1 1/2", 1 3/4" & 2 1/4".
Boring mills, Bullard 52" 2 swivel heads and 24" rapid production, Landis 3" bar, 24x48" table, Landis 3 1/2" bar, 30x52" table.
Lucas No. 21 horizontal, s. p. d.
Rochester 3 1/2" bar, floor type.
Drills, Baker No. 416 heavy duty.
Drills, Plain Radial, 4 Mueller and 5' Western.
Gear shapers, Fellows Nos. 6 & 7.
Gear generators, Gleason 15" spiral bevel; roughers and finishers;
Barber - Colman No. 3 and 12;
Lees-Bradner No. 1 & 5A.
Grinders, Brown & S. No. 10, s.p.d., 3. & S. Nos. 14 & 16 pl., m. d.,

And many more good tools.

548 Second Ave., Detroit, Mich.

No. 3 B&S univ. Heald No. 50, 55, 65, 70, & 75; Landis 10x36 plain s. c., m. d.; Norton 6x32, 10x36 & 14x50; type A, 18"x55" m. d.
Lathes, American G. H. 16"x6"; LeBlond 16x6; Flather, 24"x10".
Hendey 16"x6" T. A. Yoke Head, 36"x10" Niles-Bement-P. m. d.
Lathes, turret, W. & S. No. 2A and 4 geared head; W. & S. Nos. 4 and 6 cone; J. & L. 2"x24" and 3"x36" dbie. spdle.
Milling mchs., B. & S. No. 2B hvy. plain; Kempsmith Nos. 12 & 33 Mfg. Oesterlein univ. 24x74x18", Rockford univ. No. 2B, m. d.
Planers, 48"x36"x8" Cincinnati, 2 hds., m. d.
Presses, Ferracute Pl. 2, 3, D G 53 and D D G 4 cam; Bliss No. 29 arch; Metalwood 30 ton hyd.

FOR SALE BY

Lang Machinery Company, 28th St. & A. V. R. R. Pittsburgh, Pa.

Air comp. (2) Sullivan, 400 c. f. 100 lb. Automatics, "C" No. 52 Nat. Acme. Automatics (4) No. 5-A Potter & J. Automatic, 24" cone 4 spdl. m. d.
Bolt cutters 1 1/2" Landis, 1 1/2" & 3" Acme.
Bor. mill, 30" Bullard, thrd. att., spd.
Bor. mill, 76" Bullard, 2 hds. m. d.
Bor. mill, 94" Sellers, 2 hds. b. d.
Bor. mill, hor. 4 1/2" bar Niles, s.p.d.
Bor. mill, hor. 6" N-B-P floor type.
Brake, No. 204 D&K, 10"x10 ga. m. d.
Broach, No. 3 LaPointe, m. d.
Buffer & pol. 5 H. P. AC Marschke.
Drill, No. 124" Baker, cap. 24".
Drill, rad. 3" Fosdick, t. a., b. d.
Drills, rad. 6" American, m. d.
Drill, rad. 6" Bickford m. d.
Drills, upright, 14" to 32".
Drill, sens. No. 1 Avey, b. b., b. d.
Drill, 4 sp. No. 2 Foote-Burt, m. d.
Drill, 16-spdl. No. 12 Pratt & W.
Gear hobber, No. 18 H N Gould & E.
Gear millers, No. 1 Bilton, b. d., (2).
Grinder, disc, dbl., 18" Diamond, b. d.
Grinder, disc, No. 14-26" Besly, bd.
Grinder, plain 12"x72" Landis, m. d.
Grinder, surf. vert. 12" P & W m. d.
Grinder, univ. No. 24 Bath, b. d.
Hammer, 100 lb. Bradley, cush. hel.
Hammer, forg. 5000-lb. Niles-B-P.
Keyseaters, No. 00.1" & No. 33", Baker
Keyseater, No. 4 Mitts & M. b. d.
Lathe, 14"x6" Carroll, g. c. g., b. d.
Lathe, 14"x8" Hendey Tie B. t. a. b. d.
Lathe, 16"x6" American q. c. g., b. d.
Lathe, 20"x16" Shum. B&E t. a., b. d.
Lathe, 24"x10" Bradford, p. c. g., b. d.
Lathe, 24"x14" American, q. c. g., b. d.

Lathe, 26"x12" Bridgeford, q. c. g., b. d.
Lathe, 30"x14" L. & S. q. c. g., m. d.
Lathes, tur. No. 4 W. & S., b. d.
Lathe, tur. 18" Libby, 39/16" h. s., m. d.
Lathe, tur. 24" Steidle, 6 1/2" h. s., m. d.
Miller, plain, No. 2 Cincinnati b. d.
Miller, plain, No. 24 LeBlond, b. d.
Miller, plain No. 28 Ohio, b. d.
Miller, plain No. 4 LeBlond b. d.
Miller, plain B. & S. tbl. 17"x72".
Miller, univ. No. 1 Cincinnati b. d.
Miller, univ. No. 3-B Hendey, b. d.
Miller, slab, 36"x36"x16" Ingersoll.
Miller, 26"x36"x12" Ing., adj. r.
Miller, univ. No. 2 Kempsmith, b. d.
Millers, vert. Nos. 4-B & 6 Becker.
Pipe machines, (2) 2" Landis, b. d.
Pipe machs. 3", 6" & 12" Saunders, b. d.
Planers, 36"x36"x10" Cin., 2 hds.
Planer, 60"x48"x14" N-B-P, 3 hds. b. d.
Planer, 72"x56"x20" Cin. 3 hds. m. d.
Press, No. 0 Stiles, 1" stroke.
Press, cam, 400 ton Perkins, str. 14".
Press, o. b. i. No. 20 Bliss, 2" str.
Profilers, Nos. E3 & E4, Keller, m. d.
Rolls, bending, 8"x10 ga. 5" dia. rolls.
Saw, hack, 13"x16" Peerless, m. d.
Shaper, 28" Queen City, b. g., b. d.
Shapers, (2) 24" G. & E., b. d. & m. d.
Shaper, 20" Cincinnati, b. g., b. d.
Shaper, 16" American, b. d.
Shear, sq. 10"x14 ga. Niagara, m. d.
Shear, sq. 16"x16" Niagara, m. d.
Shear, sq. 13"x4" Hyde Park, 15" gap.
Straighteners, Shuster 6' & 12"x4".
Table, rotary, 26" graduated.
Tapping machine, 10" Baker, s.p.d.
Welders, arc, 200-300 amp. Lincoln.

USED AND REBUILT MACHINERY

FOR SALE BY

Marr-Gallbreath Machinery Co.,

55 Water St., Pittsburgh, Pa.

Air comp., 9x8" & 10x8".
 Boring mill, 42" Bullard, 1 swivel
 and 1 turret head, m. d., p. r. t.
 Boring mill, 30" Bullard VTL,
 threading attachment.
 Brake lining punch and riveting
 machine, m. d.
 Crimping & corrugating machine,
 10"x16 Ga., Keene.
 Drill, 24" Aurora, t. a., m. d.
 Drill, 25" Superior, b. g., power fd.
 Drill, No. 11-B, Natco, 16-sp., m. d.
 Drill, radial, 34" Canedy-Otto.
 Drill, radial, 24" Drees (rd. col.)
 g. b., s. p. d.
 Forging mch., 14" Acme m. d.
 Furnace, gas, Tate-Jones, 25"x23"x12"
 on legs.
 Grinder, No. 21 Landis 10"x30",
 plain, b. d.
 Grinder, univ. No. 3 Cin. 16"x48", m. d.
 Grinder disc, No. 2 Gardner, 30"
 wheels, m. d. 3/60/220.
 Hammer, power, 50 lb. Boss, b. d.
 Hammer, power, 50 lb. Little Giant.
 Hammer, 200 lb. Baudry, power.
 Hammer, 400 lb. Bliss board drop, b. d.
 Hammer, 800 lb. Erie SF steam or air.
 Hammer, Syntro Elec., 1/60/110/.
 Keyseater, No. 2 Catlin, cap. 2"x15".
 Keyseater, No. 3 Mitts & M., belt.
 Lathe, 8" Hjorth bench precision
 thread, att., turret, m. d.
 Lathe, 9"x5' Monarch q. c. g., t. a.
 Lathe, 10"x4' Star, plain change.
 Lathe, 11"x6' Myers, q. c. g., chuck.
 Lathe, 13"x8' So. Bend, q. c. g., t. a.,
 chuck.
 Lathe, 15"x10' G-H, g. h., t. a., form d.
 Lathe, 16"x12' L. & S., q. c. g., ta.
 Lathe, 18"x8' Superior, q. c. g., d. b. g.
 Lathe, 20"x10' Johnson q. c. g., t. a.,
 Lathe, 22"x12' Rahn-Larmon, q. c. g.
 Lathe, 24"x16' L. & S., q. c. g., t. a.,
 chuck.
 Lathe, turret, No. 4 W. & S., bar
 feed, m. d., g. f. h. (2).
 Miller, univ. No. 3 Cin., serial 2530-U.
 Miller, pl., No. 15 Garvin, 42x10x21".
 Miller, No. 4 Ohio, table 101".
 Pipe machine, 3" Robbins, bench,
 motor 1/60.
 Pipe machine, 18" Wieland, m. d.
 Planer, 36"x36"x8" Cin., 2 hds., m. d.
 Planer, Gray, 56x45x10', 4 heads.
 Polishing stand, 3 HP. US., 3/60/220.
 Press, arbor 20 ton Lourie, Hyd.
 Press, bench, No. 160-A. W-F., Wt.
 275 lbs.
 Press, foot, I-A Bliss-Con. 400 lbs.
 Press, OBI No. 21 Bliss, 1' & 2" st. (3)

Press 77 1/2 Bliss, T. R., 10" str. dbg.
 Press, D. C., No. 95-E Toledo, tie-
 rod; d. b. g., for m. d.
 Press, No. 57-S Toledo, d. b. g., fctn.
 clutch.
 Press, No. 50 1/2 Toledo tie-rod, d. b. g.,
 fctn. clutch.
 Press, P-3 Ferracute m. d.
 Press or shear, United ob., 3 1/2" shaft,
 m. d. (2).
 Pump, cent. 700 GPM., 4" disc.
 Punch, triple combination Pels 16.,
 m. d.
 Punch & shear, 25x24 U. Buffalo,
 Punch and shear, No. 3 L. & A.,
 3"x3", 14" throat.
 Punch and shear, No. 12 Badger
 combined, b. d.
 Punch, & sh. hand, No. 3B. Beloit
 5/16"x3".
 Punches, hand No. 6 Kidder.
 Riveters, Shuster, 3" & 3/16", belted.
 Riveter, No. 120 Grant, cap. 3", m. d.
 Rolls, litch, 54"x24" P.S. & W., hand.
 Saw, band, 20" Clark "JM", gear
 box, AC motor.
 Saw, No. 10 Racine 9x9", belted.
 Saw, cold, No. 7 Espen-L., 15" belt.
 Saw, cold, No. 1 Newton, 4 1/2" belt.
 Saws, hack, 6x6" Peerless h. s., (2).
 Saws, univ. shaping, 6x8", m. d.
 Shaper, 14" Steptoe, sbg.
 Shaper, 21" Smith & Mills.
 Shaper, 24" Barker b. g. V-ram, b. d.
 Shaper, 24" G. & E. motor 220-volt, d. c.
 Shaper, 24" American b. g. crk., b. d.
 Shear, angle 8x8x1 1/2" H & J. m. d.
 Shear, angle, 6x6x1 1/2" Kling., m. d.
 Shear, rotary 232 Bliss 14 ga.
 Shear, throatless 18-M Marshall-
 town, motor drive.
 Shear, squaring, 42"x16 ga. Niagara,
 b. d.
 Shear, squaring, 48"x14 ga. Excelsior
 b. d.
 Shear, bar 3" United, 24" blade, m. d.
 Steam turbines, 100 h. p. 900 rev. (2).
 Testing mach. 100 Ton Olson, com.
 Tearing machines 600 & 1000 lb. hand.
 Truck, Cowan Transveyor 5000 lb.
 hand.
 Tumbling barrel, tilting, 20x14",
 gear con. m. d.
 Unishear, 0-36" Stanley, 14 ga. form d.
 Valve refacer, Kwik-Way, cabinet
 base, m. d.
 Welder, Arc 300 amp. 3/60/220.
 Wheel press, 150-ton Allen, 48"x9",
 b. d.
 Wheel press, 60 ton 34"x8 1/2", b. d.
 Wheel press, 200 ton 93"x14" m. d.

Partial List. Get Our New Complete Stock List.

USED AND REBUILT MACHINERY

FOR SALE BY

Scott-Bansbach Machinery Co., 4607 West 20th St., Chicago Ill.

Automatic screw machines, B. & S., Nos. 00, 0, 2	\$450 to 1250
Automatic screw machine, B. & S. No. 19 high speed, cap. 1" x 1 1/2, b. d.	400
Automatic screw machine, B. & S. No. 19 high speed, with motor	500
Automatic screw machine, Cone, 1", 4 spdl, b. d.	1250
Automatic screw machine, Gridley, 4 spdl, 1 1/2" Model G. and F.	600
Automatic screw machine, Cleveland, 1/2" to 1 1/2", model A and B	\$250 to 450
Automatic screw machine, Cleveland model "B", 3" cap., belt drive	300
Automatic screw machine, Cleveland 7 1/2" Model A belt drive, 13964	2850
Air compressor, Curtis, 8" x 8", capacity 80 to 110 cu. ft.	275
Air compressor, Chicago Pneumatic, 10" x 8", capacity 117 cu. ft.	250
Buffer, 5 H. P. Hill Curtis, rite speed, tex rope drive	300
Broach, Hercules Power, 15 ton, motor drive	400
Drill, New Albany, h. s., motor drive, 110-60-1	100
Drill, Leland Gifford, h. s., b. b. sensitive, 1/2" capacity	75
Drill, Demco h. s., b. b., 1/2" capacity	110
Drill, Allen, 14" H. S. B. No. 2-B. M. T.	175
Drill, 2 spindle Leland-Gifford h. s., b. b., sensitive, 1/2" cap.	150
Drill, 2 spindle Leland-Gifford h. s., b. b., 14", No. 2 M. T.	250
Drill, 2 spindle, Kern, h. s., b. b., 16", No. 2 tapping attachment	250
Drill, 3 spindle Avey, h. s., b. b. bench type on pedestal, 1/2" cap.	200
Drill, 3 spdl., Leland, 24" swing, h. s., b. b., 12" travel, 26" x 54" tbl.	500
Drill, 4 spindle, Dwight-Slate, H. S., B. B., 16" swing No. 2 M. T.	325
Drill, 4 spindle Demco h. s., o. b., 16" swing, 1/2" capacity	400
Drill, 6 spindle, Avey, No. 3, H. S. B. B., belt drive	600
Drill, 20" Canedy-Otto, back geared, power feed	100
Drill, gang, 3 spindle Barnes, 23 1/2" swing b. g., p. f., No. 4, m. t.	275
Drill, 24" Cincinnati-Bickford sliding head, back geared, power feed	300
Drill, 32" Mechanics, sliding head, back geared, power feed	350
Gasoline engine, 10 h. p. Gray, automatic start	125
Grinder, gear cutter, No. 23 Brown & Sharpe, 8" capacity	300
Gear cutter, B. & S. No. 3, 26" for spur gears	300
Gear hobber, No. 00 Pfauter, cap. 8" x 5" x 10 DP	100
Grinder, No. 1 Cincinnati, cutter and tool, belt drive	150
Grinder, 6" x 32" Norton plain motor drive with motor	1000
Grinder, 8" x 20" Fitchburg, takes 17" automatic feeds, b. d.	400
Grinder, No. 1 LaSalle, hand and surface, belt drive	75
Grinder, No. 2 Morse, universal, capacity 12" x 30", belt drive	750
Grinder, surface, No. 2 B. & S. with mag. chuck, cap. 18" x 8" x 3 1/2"	600
Grinder, surface, No. 2 Diamond, cap. 10" x 24", magnetic chuck, b. d.	750
Grinder, Safety, surface, capacity 16" wide, 50" long, 12" high, belt dr.	500
Grinder, Heald, No. 65, cylinder, 16" spindle and fixture	350
Hammer, No. 1 1/2 B. High Speed, motor shelf, 1/2" capacity	100
Hammer, No. 1 1/2 B. High Speed motor shelf, 1/2" capacity 12" gap	125
Hammer, No. 3-A h. d., 1/2" cap. with motor	200
Hammer, No. 4 A. High Speed belt drive, 1/2" cap.	200
Hammer, No. 5 A. High Speed, motor shelf, 1/2" capacity	275
Hammer, Bradley, 30 lb. compact belt drive	200
Hammer, Bradley, 40 lb. rubber cushioned helve, belt drive	325
Hammer, Bradley, 50 lb., upright strap, belt drive	400
Hammer, Bradley 60 lb., rubber cushioned strap, belt drive	500
Lathe, Stark bench, 7" x 30" x 1 1/2" cap., c. r., s. r., c. s. and chuck	150
Lathe, 11" x 5" C. A. Mann, 3 jaw chuck, experimental use	150
Lathe, 13" x 5" Monarch q. c., s. b. g., 4 jaw chuck taper att. rebuilt	300
Lathe, 13" x 5" Willard, semi q. c., d. b. g.	200
Lathe, 13" x 5" South Bend, standard change gears	200
Lathe, 14" x 6" Worcester semi q. c., with 4 jaw chuck	175
Lathe, 14" x 6" LeBlond, q. c., D. B. G. 4 jaw chuck, 16" swing	350
Lathe, 15" x 5" South Bend, standard change gears	250
Lathe, 15" x 6" Springfield, q. c., b. g., taper attachment	350
Lathe, 15" x 6" Schumacher & Boye, quick change, s. b. g.	325
Lathe, 16" x 6" Monarch, q. c. g., d. b. g., with complete tool room equip't	500
Lathe, 18" x 8" Davis d. b. g., q. c., heavy duty	450
Lathe, 20" x 8" Walcott, q. c., d. b. g.	550
Lathe, 20" x 8" Prentice, plain change with 3 chucks	150

USED AND REBUILT MACHINERY

Scott-Bansbach Machinery Co.—Continued

Lathe, 21"x38", LeBlond, q. c., 4 jaw chuck	\$ 550
Lathe, 30"x13" H. S. & G. heavy duty, q. c., d. b. g., 16,000 lbs.	1000
Lathe, 50"x24" Fitchburg, triple grd., pl. change, blocks to 64" & 76" ..	1500
Lathe, 18"x5" spinning, Grabo, 24" between centers	175
Lathe, 24"x44" spinning gap, Frybail, 40"-76" between centers	350

FOR SALE BY

J. Lee Hackett Co., - 5838 Commonwealth Ave., Detroit, Mich.

1—Cincinnati 24" planer, motor driven, with 7½ HP 600 RPM G. E. AC motor mounted on top frame, with magnetic push button control, single head on cross rail, 6' box type table. Extra good condition.

FOR SALE BY

The O'Brien Machinery Co.,

113 N. Third St., Philadelphia, Pa.

Band saw, 42" American, V belt, m. d.
Boring mill, 24" Bullard, rap. prod.,
threading attachment.
Crane, 36' Gantry, 20 ton, hand oper.
Drill, 6' Mueller radial, mtr. dr.
Drill, D2 Colburn, 3" cap.
Gear hobbess, 18" & 24" Gould & E.
Grinder, No. 103 Rivett, internal
hole cap. 1/64" to 3".
Grinder, No. 11 B & S Plain, 6"x32"
s. p. drive.
Hammer, 1100 lb. NBP. steam forg.
Hammer, 2000 lb. Chambersburg
double frame steam.
Lathe, 14"x6' Hendey, motor drive,
3-phase motor, taper attachment.
Lathe, 20x24 New Haven, belt.
Lathe, 36"x26" Johnson, belt drive.
Lathe, turret, No. 1 B&S hand screw
machine, belt drive, lot of equip.

Lathe, turret, 3A Warner & Swasey
S. P. drive, cap. 34".
Miller, No. 1D B&S Univ., table
36"x11½" cone drive.
Miller, No. 3 LeBlond plain, belt
drive, table 12"x60", quick chge.
Miller, No. 2 Kempsmith, plain,
table 10"x45", belt drive.
Miller, No. 5 Cincinnati plain, table
76"x19", s. p. drive.
Miller, No. 3 Cinn. vertical, table
58"x13½", SP dr.
Pipe machines, 2, 4, 6, 8 and 12"
belt and motor drive.
Press, No. 41 Robinson, 36" bet. up,
geared stroke 2", weight 11,000 lbs.
Shapers, 14, 16, 20 & 24" various makes
Shear, rotary, 30" throat Bethlehem,
½" capacity. Low price.

FOR SALE BY

J. L. Lucas & Son, Inc., - 3 Fox St., - Bridgeport, Conn.

Boring mill, 34" Landis table type, arr. m. d.	\$5000.
Boring mills, 3" Lucas, 3" DeFance—write for price.	
Crane, cab, 50', 10 ton, a. c. motors	1000.
Cutoff saws, new, 12" to 48" in diameter	
Grinder, No. 13 B. & S. tool and cutter	1250.
Grinder, No. 33 Abrasive, 16" rotary chuck	1000.
Hammer, 300 lb. Standard automatic drop	750.
Lathes, 16"x8" P. & W. geared head	800.
Mill 96" Pond vert., 3 heads	2000.
Press, 57T and 58T Niagara trimming, each	650.
Press, o.b.i., No. 8 Waterbury Farrel	925.
Press, 300 ton Elmes vert. hydraulic (2)	850.
Screw machines, hand, No. 2 W. & S. (7)	250.
Shaver, 14" Gould & Eberhardt, cone drive	425.
Shaper, 16" Gould & Eberhardt, back geared, (4)	525.
Shaper, 20" Stockbridge, m. d., 3 ph. 60 cy 220 v	850.
Shaper, 24" Gould & Eberhardt	950.
Shear, circle, 42"x½" Lennox	1000.
Shear, gap, 48" E. F. Cleveland	750.
Shear, gap, E. F. Cleveland double end	1250.

USED AND REBUILT MACHINERY

FOR SALE BY

Belyea Company, Inc.,

150 W. 18th St., New York, N. Y.

D. C. MOTORS

Adj. Speed—210 Volt

QUAN.	H. P.	MAKE	TYPE	SPEED
1—	875	West.		480/720
1—	550	West.		240/720
2—	500	G. E.	MPC	180/350
1—	400	G. E.	MPC	180/300
1—	400	West.	QS	450/675
2—	300	West.	SK	150/300
2—	200	G. E.	DMC	300/600
1—	125	West.	SK-210	225/900
1—	125	G. E.	DMC	150/300
8—	120	G. E.	DMC	300/750
1—	100	West.	SK	475/1000
1—	100	Reliance	1050-T	400/1200
1—	80/100	Diehl	K11-40	550/1100
6—	75	Cr. Wh.	100 H	350/900
1—	60	West.	SK	107/160
2—	60	El. Dy.	25-S	450/1200
5—	60	El. Dy.	25-S	525/1050
2—	50	West.	SK-190	225/600
12—	40/50	Cr. Wh.	H	175/700
2—	40	West.	SK	120/240
1—	40	West.		300/900
2—	35	West.	SK-131	250/1000
1—	35	West.	SK	300/1200
1—	35	West.	SK	500/1500
1—	30	Rel. B.B.	T-252T	500/1500
1—	35	West.	SK-130	375/1200
1—	25	West.	SK-140	400/1200
12—	20	G. E.	LC	650/1350
1—	20	G. E.	RF-12	800/1500
1—	15	El. Dy.	10S	450/1350
1—	15	Reliance	E	400/1600
1—	15	El. Dy. B.R.	10-S	450/1350
4—	10	West.	SK-90	500/1500
2—	10	G. E. B. B.		600/1800
1—	10	G. E.	RF-12	325/1300
1—	10	El. Dy.	74S	425/1600
4—	10	El. Dy.	10S	300/1200

A. C. MOTORS

220/440 volt—3 phase—60 cycle

SLIP RING

QUAN.	H. P.	MAKE	TYPE	SPEED
1—	90	Wagner	BR	650
1—	75	G. E.	ITC-M	865
2—	75	West.	CW	1100
1—	60	G. E.	MTC	600
1—	60	G. E.	MTC	855
2—	25/65	West.	CW	470/1160
2—	50	G. E.	MT	1750
1—	50	G. E.	MT	1100
3—	50	G. E.	MT	965
1—	50	West.	CW	1200
1—	50	West.	CI	690
1—	50	West.	M	580
3—	40	G. E.	MT	1200
1—	40	G. E.	MT	560
1—	15/35	West.	CW	575/1160
4—	15/30	G. E.	OMT	550/1155
2—	30	West.	CW	1800
1—	30	West.	CI	900
1—	25	G. E.	MT	1140
1—	25	G. E.	IM	600
1—	25	G. E.	ITC-M	600
1—	20	G. E.	MT	1710
1—	20	G. E.	MT	1200
1—	20	Cr. Wh.	116Q	1120
1—	20	West.	CW	1160
2—	15	West.	CW	1160
2—	15	G. E.	IM	1145
1—	15	Cr. Wh.	16Q	1140
1—	15	West.	CW	870
1—	15	Triumph	C	1150
1—	11	G. E.	MTC	820
1—	10	West.	CW	857
1—	5	Cleveland	MW	1200
3—	14	New West.	CW	1120
1—	14	Mech. Appl.		1140

We also have over one hundred motors in sizes down to one-half horse power.

FOR SALE BY

E. L. Klauber Machinery Co.,

320-322 South Third St., St. Louis

Lathes, 6" bench, precision.
 Lathe, 10"x48" Seneca Falls, bench.
 Lathe, 13"x6" South Bend m. d.
 Miller, No. 00 profile, precision.
 Millers, U. S. hand.

Millers, No. 1 Knight vertical.
 Press, straight side, 4" crankshaft
 1" stroke; 10" between columns.
 Saws, 6x6 Racine & O. & C.
 Screw machines, 1/2" wire feed, B. & S.

FOR SALE BY

H. F. Wolnick Machinery Co.,

9 So. Clinton St., Chicago, Ill.

Air compressor, 25 cu. ft., d. c. motor.
 Cam grinder, P. & W.
 Drill, press, 24" Aurora.
 Generator, 11" & 18" Gleason.
 Lathe, 18"x5' Hendey, taper att.

Mill, No. 3 LeBlond plain.
 Press, No. 4 o. b. incl., 4" stroke.
 Press, No. 3 o. b. incl., 3 1/2" stroke.
 Punch press, No. 0 bench.
 Swaging machine, 1/2" capacity.

USED AND REBUILT MACHINERY

FOR SALE BY

West Penn Machinery Company

1210 House Building.

Air compressors, 30 to 2500 cu. ft.
Automatic Nat. Acme mod. "C"
9/15 m. d.
Blower, No. 4 Roots, cap. 2110 c.f.m.
Bolt cutter, Acme 2", belt drive.
Boring mill, hor. 3" G. & L. s. p. d.
Boring mill, 42" King, b. d.
Boring mill, 62" Betts, 2 heads, b. d.
Bor. mill, hor. 5" bar Barrett. m. d.
Brake, 7'x10 ga. D. & K. m. d.
Brake, 10-18 ga. hand.
Bulldozers, Nos. 2, 4, 6, 9, 28, & 30.
Crane, 5-ton Case, 65' span, 220-d.c.
Crane, 7½-ton Morgan, 220-d. c.
Crane, crawler, gas., No. 2 No'wes.
Draw bench 20000 lb. W-F.
Drill rad., 4' American s. p. d.
Drill, radial, 4' Prentice, t. a., b. d.
Drill, radial, 5' Cincinnati-Bick., m. d.
Drill, radial, 5' American, s. p. d.
Drill, rad. 6' Reed-Prentice, s. p. d.
Drill, mult. 24 sp. No. 30 Natco.
Drills, upright 10" to 36".
Drill, press, 6 spindle Allen.
Drill press, 2 spindle Sipp.
Engine, gas, 20 h. p. Bessemer.
Flanger, McCabe, 4" capacity, dies.
Gear cutter, No. 5 B&S. 60x11 m. d.
Gear cutter, 15-H G. & E.
Gear cutters, 11", 18" & 24" Gleason.
Gear tester, bevel 18" Gleason.
Grinder, No. 55 Heald, b. d.
Grinder, roll, Farrel 28"x64".
Grinder, d. e. 2 h. p. 220/440/3/60.
Grinder, D.E., 3HP. 220/3/60.
Grinder, disc, No. 8-20" Besly, b. d.
Grinder, disc, No. 4 Gardner, m. d.
Grinder, 12x42" Landis univ.
Grinder, surface 8" Heald.
Grinder, sur. 14" Pratt & W., m. d.
Grinder, surf. Diamond, table 49x16".
Grinder, int. No. 60 Heald, b. d.
Grinder, 12"x72" Landis m. d.
Hammer, power, 50-lbs. Blacker.
Hammer, power, 90-lb. Justice, b. d.
Hammer, pwr., 100 lb. Brad. cush.
Hammer, Brad. 500 lb. upright.
Hammers, Nos. 2-B, 3-B, 4-B, Nazel.
Hammers, steam, forging & drop.
Keyseater, No. 2 M & M, b. d.
Ladies, 20 ton Whiting, top pour.
Lathe, 11"x5" Meyers, p. c. g., b. d.
Lathe, 16"x6" Fosdick, d.b.g..q.c.g.
Lathe, 18"x8", L. & S., b. d.
Lathe, 22"x12" R-L q.c.g., d.b.g.
Lathe, 24"x15" Prentice, grd. hd.
Lathe, 42"x16" S. B. q.c.g., b. d.
Lathe, spinning 32" b. d.
Lathes, turret, No. 4 W & S. b. d.
Lathe, turret, No. 6 W & S. grd. hd.
Lathes, No. 1 W. & S. turret, b. d.
Lathe, turret, No. 2A, W. & S., m. d.
Miller, vert. No. 6 Becker, m. d.

Pittsburgh, Pa.

Mixers, Sprout-W., batch & liquid.
Motors, a. c. & d. c.
Nibbler, No. 1 Gray 3/16", 34" thrt. bd.
Pipe machine, 4" Oster, 220-3-40 m. d.
Pipe machine, 2" Landis, b. d.
Pipemach, 2", 6", 8", 12" Williams, md.
Planer, 36x36x10" Cincin. b. d.
Planer, 42x42x12" Cinc., 3 hds., b. d.
Planer, 60x60x20" Pond m. d.
Press, No. 20B Bliss, OBI.
Press, No. 6 L. & J. OBI.
Press, cam, No. 69N Bliss, dbl act, inc.
Press, horn., No. 43 Toledo 1½" str.
Press, hyd. 100-ton Southwark.
Press, hyd. 200-ton Oilgear.
Press, No. 55 Toledo, bed 20x19.
Press, No. 58 Toledo, 8" stroke.
Press, No. 77½ Bliss, 8" stroke.
Press, dbl. crank No. 5 Bliss, 3" str.
Press, gap, No. 74 Bliss consolidated.
Press, No. 6 Niagara, o. b. i. grd.
Press, No. 7-A Niag., o. b. i. grd.
Press, screw, No. 87 Niagara.
Press, 6 spindle W-F.
Punch, Rock River, 4"-4".
Punch, E F Cleveland, 36" thrt., 1½"-1"
Pumps, Cent. 6", 4", 1", m. d.
Riveters, air, hammer, spinning.
Rolls, angle, Nia. 1x1x14".
Rolling mill, cold 9" x18".
Saws, friction, Nos. 2, 3 & 4 Ryerson.
Saw, cold, 48" Newton.
Saw, hack, Peerless, 6x6 220-3-60.
Saw, hack, Racine 6x6.
Saw, hack, Peerless, 13"x16", m. d.
Saw, shaping, Peerless 6x6 220-3-60.
Scale, sheet bundling, 2500 lbs.
Shapers, 16", 20", 24" & 36" G. & E.
Shears, alligator, 1½", 2", 3", 4" & 6".
Shear, angle 6x6x½", Cleveland.
Shear, circle, Niagara, 4" cutters.
Shear, circle No. 3 Bliss, 40"x20 ga.
Shear, bar 1½", New Doty.
Shear, bevel, Lennox 1½", b. d.
Shear, sq. No. 48 Exc. 14ga. bls 53".
Shear, sq. 11"x10 ga. Niagara, m. d.
Shear, plate, 60"x1½" Pels.
Shear, plate, 60"x1½" H. & J., m. d.
Shear, 24x1½" Bliss, b. d.
Shear, rotary 24" thrt. cap. 1", m. d.
Slitter, gang, 36" Yoder m. d.
Slitter, gang, 36" Braddock, b. d.
Slotters, 6" Newton, 8" & 21" Betts.
Slotted, 24" Newton, motor drive.
Straightener, AS&TP 12"x3/16", bd.
Straightener, 42" Aetna std. 17 roll 23".
Straight'r, 48" Aetna-Std 17 roll 34".
Straightener, Shuster, 12"x4".
Straightener, 1½", 4" rd. Abramson.
Tumbling barrel, 34"x45", b. d.
Upsetters, 1" to 6".
Welder, 40 kw. Thom. 2 pcs. 1".
Welder, butt 1½" Winfield.

USED AND REBUILT MACHINERY

FOR SALE BY

Joseph Hyman & Sons, - Tioga & Almond Sts., Philadelphia, Pa.

POWER PRESS SPECIALISTS

407A Bliss toggle, tie rod.
600 ton No. 25K Bliss embossing KJ
500 ton American Can embossing KJ
160 Toledo, toggle.

No. 794 Bliss, 16" stroke tie rod.
10"x12" shear gap, 15" Wais & Roos.
Shuster straight 8"x14" & 8"x15".
Hundreds of presses of various types.

FOR SALE BY

The Nutmeg State Machinery Corp.

1041-1051 State Street - - - - - New Haven, Conn.

Boring mill, Lucas No. 31.
Furnace, electric, Sentry.
Grinder, No. 2 m. d. Reid surface.
Grinder, No. 2 univ. B. & S.
Miller, duplex, Van Norman No. 2.

Miller, O.V. B. & S., m. d.
Miller, No. 2A Becker vertical.
Press, High Speed, 40 ton, W. F.
Press, No. 34A Bliss toggle.
Press, DDG 55, Ferracute.

FOR SALE BY

M. A. Wertman Machinery Co., 623 Penton Bldg., Cleveland, Ohio

Automatic, Cleveland, 2-24" B m. d.
Drill, Rockford 24" sliding head.
Grinder, No. 1 LeBlond tool & cut.
Grinder, No. 190 Greenfield & cut.
Grinder, 6"x32" Norton plain (2).
Lathe, 14"x8" Mulliner qcg toolroom
Lathe, 30"x15" Reed lcg fine cond.
Marking machine, No. 11 Noble

& W'atbr'k power.
Miller, Cincinnati 15" B. G. plain.
Miller, Milwaukee No. 2B pl. s.p.d.
Press, Lucas 15 ton forcing.
Planer, 30"x30"x12' Gray.
Shaper, 17" Smith & Mills, s. p. d.
Thread miller, Lees-Bradner No. 8
54".

FOR SALE BY

Reliance Machinery Sales Company

1405 Brighton Place, N. S. - - - - - Pittsburgh, Pa.

Beader & flanger, No. 153-B Bliss.
Brake, 10"x10 ga. Oil, press type.
Bulldozer, No. 9 W.-W., 24" stroke.
Compressor, 8x8 Ing-Rand, 90".
Drill, 23" Prentice, s. p. d.
Drill, radial, 34' Carlton speedy sensitive radial, m. d.
Drill, 6 spdl. Prentice ball bearing, power feeds, No. 2 m. t.
Drill, 20" Barnes 4 spdl. all geared, No. 3 m. t.
Drill, No. 4 Colburn four spindle mfg. type, cap. 3" in steel.
Furnace, tempering, chamber 74"x9x12", with blower.
Grinder, drill, Oliver, 14" cap.
Hammer, 80 lb. Bradley helve.
Hammer, 250 lb. Chamb. brd. drop.
Hammer, 600 lb. Erie sgl. steam.
Hoists, 1 and 2 ton 220 v. d. c.
Hoists, chain, 14 & 2 ton Y. & T.
Lathe, 20"x12" Amer. 3 step cone.
Lathe, 14-24"x6" F&S slid. hd. gap.
Lathe, spinning, 30" Bliss.

Lathe, 18"x5' L&Spat. hd., m. d.
Lathe, 30"x18" New Haven, pl. chk.
Miller, No. 5-B Becker vertical.
Miller, No. 4 Cinc. plain cone.
Miller, No. 3 B&S plain, old style.
Miller & driller, No. 14 Knight.
Motor, 20 h.p. GE, 3-60-220 a. c.
Planer, 20"x20"x4' P. & W. 1 hd.
Planer, 24"x24"x5' Cin., 1 hd.
Planer, 36"x36"x12' Cin., 2 hds.
Presses, No. 18 Bliss obi.
Presses, No. 58 Toledo a. s. grd. 35,000 lb.
Presses, No. 6 & 7A Niag. obi. grd.
Presses, P-2 & P-4 Ferracute punch.
Press, Waterbury obi. 4" shaft, 3" stroke, 5500 lbs.
Press, No. 72 Robinson dbl. crank, 4" shaft, 3" stroke, m. d., grd., 72" between housings.
Press, Ferracute dbl. crk., grd., 33" wide, 5" shaft, 4" stroke.
Shear, 10"x14 ga. Niagara squaring.
Shapers, 16", 20", 24" b. g. crank.

USED AND REBUILT MACHINERY

FOR SALE BY

Wigglesworth Machinery Company

199 Bent Street, Cambridge, Mass.
Boring mill, No. 21 Lucas horizontal. | Lathe, 20" x 12' Monarch, grd. hd.
Boring mill, 24" bar Cleveland. | Lathe, 24" x 15' American grd. hd.
Drill, D14 Colburn m. d., like new. | Saw, Avey Milband, 6" x 6" m. d.
Send for Complete Stock List.

FOR SALE BY

J. L. Lucas & Son, Inc., No. 3 Fox Street, Bridgeport, Conn.

Six—CONE AUTOMATICS FOR SALE.

Machines built in 1928—1930. Motor driven, cost approximately \$8000.00 each today. Bronze bearings. Four machines, 24" capacity. Two machines, 28" capacity. For release early in 1938. Further particulars.

FOR SALE BY

Brownell Machinery Co.,

150 Pine Street, Providence, R. I.

Drill, radial, 3' American, s. p. d.
Drill, 12-spindle Pratt & Whitney.
Gear cutter, Whiton 34" x 7".
Lathe, Pond 42" x 20".
Lathe, Perkins, 28" x 18".

Lathe, Monarch, 18" x 14".
Miller, Kempsmith, No. 33, 50".
Planer, Whitcomb-B. 24" x 24" x 8".
Planer, Pond 48" x 45" x 10".
Screw machine, B. & S. No. 2 auto.

FOR SALE BY

International Machinery Co., 3178 Bellevue Ave., Detroit, Mich.

95 E Toledo Double Crank Press, tie rod construction, double geared, diameter of crankshaft 7 1/2" & 8", stroke 14". Die space with stroke down and adjustment up, from bed to ram 37". Area of bolster F to B and R to L 60" x 84". 2 bolster plates 5" thick. 6 spring cushions. Motor for adjusting ram. Fine mechanical condition. Can be inspected in operation in State of Indiana. Price on application.

FOR SALE BY

Brown Machinery Co.,

2333 N. 9th St., St. Louis, Mo.

Brake, Chicago Steel, 8' 18 gauge.
Die filer, Oliver S-1, m. d.
Drills, 14, 16, 20, 22, 24 & 42"
Drill, rail, Foote-Hurt, 4-spindle.
Drills, 16 & 20 spindle Natco.
Grinders, cylinder, Madison, No. 65
Heald.
Grinders, cylindrical, 12" x 42" and
18" x 30" Landis.
Grinders, disc, No. 6-20 Bealy; No.
320 Badger automatic.
Hammers vert. 40 lb. Bradley, 120 lb.
Kane & Roach.
Lathes, 26" x 12' Putnam, taper att.;
18" x 8' Rahn-Mayer; 18" x 8' L. &
S., pat. head; 16" x 6' Bradford.
Lathes, tur., 16" 21", 24" Gisholt.
Millers, plain, No. 3 Kempsmith;
29 Fox; 3-B Owen.
Millers, universal, No. 2 Hendey-
Norton; Lincoln type, No. 4
Hendey; slab, Briggs type No. 11.

Planer, 42" x 42" x 18' Putnam, 3 hds.
Planer, 30" x 30" x 6' Whitcomb.
Presses, straightside, No. 7 Zeh &
Hahnemann.
Press, 300-ton Hydraulic Press Co.,
vertical; 42-ton Elmes.
Presses, o. b. i. Nos. 1, 2, 3, 4
Loshbough-Jordan.
Punches, sgl. end, Cleveland "C"
26" thr. 1/2" in 1/2"; Rock River Style
L rapid action, 24" thr. 1/2" in 1/2".
Punch & shears, dble. end, No. L-10
Badger 10" thr. 1/2" in 1/2".
Riveters, Grant 1/2" 18" throat, M. D.
Saw, cold, Higley No. 14.
Screw machines, No. 2 P. & W.;
1 x 15" P. & W.
Shapers, 20" Smith & Mills; 20"
Cincinnati.
Shear, rotary bevel, 1/2" Lennox.
Shear, jig, Gem, m. d.
Shear, sq., 9 ft. Stark, 18 ga.

USED AND REBUILT MACHINERY

FOR SALE BY

Clinton Machinery Sales Co., 4854 14th St., Detroit, Mich.

BROWN & SHARPE SCREW MACHINES

We buy and sell Brown & Sharpe automatic screw machines of all the various sizes. Best prices paid. Send your inquiries to us, or let us quote you on your equipment.

Large list of other tools available. Write for your copy.

FOR SALE BY

United Machinery & Supply Co., 1241 Walton Ave., St. Louis, Mo.

Baler, metal scrap 16" sq. bundles.
Brake, Stirling toggle 12" x 10 ga.
Drills, radial 2 1/2 and 4" m. d.
Grinder, No. 13 B & S universal.
Hammer, 50 lb. Baudry.

Presses, No. 37 Excelsior 54" bolst.
Rolls, corrugated, Bertsch 6 & 10".
Seamer, Niagara, dbl., No. 291-48.
Shear, circle and flanging, 10 ga.
Shears, bevel, Lennox 1/2 & 3/4" cap.

FOR SALE BY

Service Co., - - - 3732 Cedar Ave., Cleveland, Ohio

WELDERS

General Electric 200-amp. A.C. (4).
U. S. L. 200-amp. A.C. (1).
Lincoln 200 ampere with 6 cylinder engine (3).
Lincoln 300-amp., gas engine dr. (2).

Lincoln 400-amp., gas engine dr. (3).
Transformer type A. C. welders, 220-440 volt (7).
F. K. W. Lincoln 300 amp. a.c. dr. (7).
We rebuild, buy and sell welders.

FOR SALE BY

Failor-Strafer Machinery Co., - 136 Liberty St., New York

Boring mill, 42" Bullard 2 rail hds.
Conveyor and chain, 360', 4" links.
Drill, Amer. 3' sens. radial t. a.
Drills, Avey Nos. 1, 1 1/2, bench.
Drill, No. 121, Baker, h. p. cap. 1 1/2".
Drill, Cinn., 32" s. p. gear box.
Drill, Cinn-Bickford 4" radial.
Drill, 2 1/2" Hoeffer gang, 2 spdl.
Drill, 9" Sipp, h. a., b. b. cap. 1 1/2".
Grinder, No. 14 P. & W. surface b. b.
Lathe, 2 1/2" x 24" Acme tur. chucking.
Lathe, 3" x 36" J. & L. bar & chuck'g.

Lathe, (2) LeBlond h. d. eng. 17" x 6".
Lathe, Sloan & Chase bench type.
Layout plate, 27" x 40" x 4" high.
Magnetic separator, Dings.
Miller, Becker, duplex Lincoln type.
Miller, B. & S. No. 5 vert., rotary.
Miller, B. & S. No. 24 plain.
Miller, Cinn. No. 3 plain, s. p. d.
Miller, Garvin plain No. 14.
Press, No. 19 Bliss inclinable.
Saw, Higley cut-off.
Sq. shear, 30" Bliss, cap. 5/16".

FOR SALE BY

Long Machinery Corp. - 56 Pearl St., - Boston, Mass.

Drill, 20" Fairbanks.....	\$ 75.
Grinder, cutter and tool, Walker No. 2, c/s and equipment.....	350.
Lathe, bench, Rivett No. 4, comp. sl. rest.....	125.
Lathe, engine, 12" x 3" Star, c. r.....	125.
Miller and centers, Becker No. 25 plain.....	200.
Miller, bench, Burke, power feed.....	50.
Miller, plain, LeBlond No. 3, s. c.....	600.
Planer, 22" x 5" Gray.....	250.
Planer, 27" x 7" Gray, c/s.....	450.
Planer, 16" x 42" Walter, chuck and countershaft.....	175.
Press, flywheel, Standard No. 7-S, 1 1/2" stroke.....	125.
Shaper, Guengat plain crank, 16".....	100.

USED AND REBUILT MACHINERY

FOR SALE BY

Chas. E. Wain Machinery Sales, 7800 Mack Ave., Detroit, Mich.
Floor sander, electric.....\$ 65.
Lathe, wood, 16" complete..... 35.
Lathe, Fox brass..... 75.
Tapper, No. 2 Garvin auto..... 150.
Pumps, water or oil, for every service.
2 to 3 tons of good leather belting to dealers only.

FOR SALE BY

C. O. Porter Machinery Co. 666 Front Ave., Grand Rapids, Mich.
EQUIPMENT USED BY US
18"x5' Monarch plain bearing lathe, back gear, four-jaw plain chuck, complete with countershaft, good condition.
24"x24"x10' Gray planer, widened to 30" between housings, countershaft. Nice condition.

FOR SALE BY

D. H. Prutton Mch. Co., 5295 W. 130th St., Cleveland, Ohio
Automatic, Cleveland 1/2" model A.
Chuck, 1/2" Cleveland model M automatic.
Drills, 1/2" cap. Demco 4 spindle, power feed, b. b. (3)
Gear hobbors, No. 0 and No. 1. Schuchardt & Schutte.
Grinder, disc, No. 50 Gardner m. d.
Tappers, (5) Webster & Perks 5 spindle vertical.
Press, No. 106 Bliss.
Press, cam drawing, No. 1 Bliss.
Presses, No. 4 & 5 Zeh & H. incl.
Welder, spot, 15 KW Federal, auto.

FOR SALE BY

Bradley Machinery Co., 529 E. Jefferson Ave., Detroit, Mich.
Automatic, Acmea, model C, 1" cap.
Automatics, New Britain 653 & 654.
Automatic, New Britain 1" x 5".
Drill, No. 310 Baker.
Drills, Allen 6 spindle.
Grinder, No. 12 B. & S.
Grinder, No. 6 Bryant internal.
Hammers, all sizes.
Lathe, Porter-Cable.
Lathe, LeBlond rapid production.
Miller, No. 33 Kempamith.
Miller, No. 12 B. & S.
Miller, No. 3 Cincinnati plain (old).
Planer, 48x48x12 Hamilton.
Swager, 204 and 208 Etna.
Tappers, 1, 2, 2X and 2BG Garvin.

Air Compressors, 4 to 1200 cubic feet.
Bolt Threader, Landis 1" cap. b. d.
Boring Mill, 32" Bullard Vertical.
Grinders, 30" Gardner Horiz. Disc. m. d.; 26" Badger double disc. b. b.
No. 3 Wilmarth & Morman Surface Hack Saw, 9x9 Racine 3 sp. gear box.
Lathes, 14 & 18x5 Sebastian grd. hd., q.c.g. 16x8, 18x8, 20x8 Flather, Monarch, LeBlond q.c.g. tap. all.
20x10 Prentice, G.H.; Q.C.; T.A.
Millers, No. 3H LeBlond pl. hvy. duty.

No. 35 Ohio Universal Equipment.
No. 3 Brown & Sharpe Plain.
No. 2 Kemp. Univ. Div. Hd. Eqp.
Nibbler, No. 1 Campbell 6" Throat.
Pipe Threader; 6" Williams M. D.
Planer, 36x36x10' Gray 2 heads.
42"x42"x14' Hamilton 2 heads.
Presses, No. 3 Walsh O. B. I. 2.)
Screw Mchs., No. 0B & S. Auto. (7).
Shapers, 16, 20, 28" Mil. & G. & E.
Turret Lathe, No. 1 Cin-Acme full univ.
Wire St. & Cut., No. 6 Wells 3/8" cap.

SEGAL MACHINERY CO., 117S. Clinton Street, Chicago, Illinois

Please say "Blue Book" when writing to advertisers.

GOOD REE

LATHES

10"x5' Seneca Falls, m. d.
14"x6' Champion, cone.
14"x8' Reed-Prentice Geared Head.
16"x6' Cincinnati, cone.
16"x6' Hendey Yoke Head.
16"x6' Hendey Geared Head.
18"x8' Lodge & Shipley Selec. Head.
18"x10' Lodge & Shipley Patent Head.
20"x6' Hendey Geared Head.
20"x10' Boye & Emmes, cone.
20"x10' LeBlond, cone.
20"x12' Lodge & Shipley Patent Head.
22"x10' L. & S., Selective Head.
24"x8' Hendey Yoke Head.
24"x10' Greaves-Klusman, cone.
24"x11' Chard, cone.

18x48" Diamond Light Duty Face.
60" Bridgeport Face.
No. 1 Landis Internal.
No. 3 Bryant Semi-Automatic Hole,
m. d.
No. 3, 103 Rivett Internal.
No. 11 Giddings & Lewis Teromatic,
3 motor drive.
No. 15A Bryant Plain Semi-Automatic
2 spindle Hole m. d.
No. 70 Heald Internal, belt.
No. 1 LeBlond Univ. Tool & Cutter,
No. 1 Norton Universal Tool & Cutter.
No. 1 1/2 Cincinnati.
No. 2 Osterleim.
No. 21, 31, 41 Oliver Motor Driven
Drill Pointers.
16" Cincinnati Face Mill.

**New 24"x17' Boye & Emmes Geared Head, arranged for
vce belted motor drive thru 12 speed geared head,
Timken Bearings throughout, all regular equipment,
also taper attachment and motor driven oil pump. Latest
type machine, built May, 1937.**

25" raised to 32"x12' LeBlond, cone.
36"x11' American, cone.
36"x28' American Geared Head.
36"x29' I. H. Johnston, cone.
No. 5 Center Drive Niles Car Wheel
Lathe, m. d., thru gear box, brand
new machine.
No. 5 Center Drive Niles Car Wheel
Lathe, m. d., thru gear box, with
A.C. motors, used machine.

GRINDERS

No. 10U Norton Lapper, m.d., like new.
No. 2F Norton Lapper, m. d., latest
type.
No. 2 Brown & Sharpe Automatic
Surface, belt.
No. 3 Wilmarth & Morman Automatic
Surface, belt.
No. 33 Abrasive Vertical Surface, m. d.
in base.
No. 78 Wilmarth & Morman Automatic
Surface, m. d. in base.
No. 210-8" Heald Ring.
14" Pratt & Whitney Vertical Surface,
belt.

Sellers Drill Grinder, 3" cap., m. d.
12x18" Cincinnati Plain Cylindrical,
3 motor drive.
6x18", 10x24", 10x36", 10x52",
10x72", 12x36", 12x52", 12x72",
16x32", 16x52", Landis Plain Self-
Contained Cylindrical.
20"x144" Landis Plain Self-Contained
Cylindrical, motor drive.
6x32", 10x36", 10x50", 10x72", 12x72",
14x72" Norton Plain Cylindrical,
belt and motor drive types.
No. 24-53" Gardner Horiz. Disc, m.d.
No. 4, 6, 120 Gardner Disc.

RADIAL DRILLS

3" Mueller, gear box.
3", 4" Morris, gear box.
2 1/2", 3", 3 1/2" Carlton Sensitive.
4", 5" American Triple Geared, gear box.
5" Cincinnati Bickford Universal, m. d.
4" Hammond Jack Knife.
5" Carlton, gear box on base, with 7" arm.
7" American Triple Geared, gear box.
7" Fosdick, cone.

EASTERN MACHINERY CO.,

BUILT TOOLS

BORING MILLS

- 24" Bullard New Era.
- 24" Bullard Rapid Production.
- 30" Bullard 1 head belt.
- 30" Gisholt 1 head m. d.
- 36" Bullard, 2 heads, belt.
- 36" Colburn, 2 heads, m. d.
- 37" Niles, 2 heads, m. d.
- 42" Bullard, 2 heads, belt.
- 60" Gisholt, 2 heads, m. d. thru gear box.
- 62" Niles Heavy Pattern, m. d., brand new.
- 72" Niles, 2 heads cone, old type.
- 2½" bar Cleveland Horizontal.
- No. 2 Niles Horizontal. 3¾" bar, m. d., brand new.
- No. 4 Niles Horizontal, 5" bar.

TURRET LATHES

- No. 2A, 3A Warner & Swasey Univ.
- No. 2, 4, 6, 8 Warner & Swasey.
- No. 4, 7 Bardons & Oliver.
- Gisholt Simplimatic, m. d.
- 2x24", 3x36" Jones & Lamson, m. d.
- 3x36" Jones & Lamson 2 spindle, m. d.
- 3¼x36" Cincinnati Acme Flat Turret.
- 3¼" Gridley S. S. Auto.
- 21", 24" Gisholt Turret.
- No. 1 Foster Turret, plain head.
- No. 2F Foster Fastermatic, motor drive, like new.
- No. 3 Foster, m. d. in base, very late.
- No. 5A, 6A, 7A Potter & Johnston Automatics.
- No. 54 National Acme 5 spdl. Auto.

PRESSES

- No. 1½ Bliss Toggle Drawing.
- No. 1½ Bliss Cam.
- D2, DD2 Ferracut Double Action Drawing.
- P2, P3, P4 Ferracut, Double Action Drawing, m. d.
- No. 5 Bliss Stiles Type, m. d.
- No. 6 Waterbury-Farrel Double Crank.
- No. 6, 7 Minster O. B. I.
- No. 30, 32P, 35 Toledo Stiles Type.
- S51 Ferracut Double Crank, m. d.
- No. 54A Toledo Special, m. d.
- No. 92B Toledo Double Crank Geared.
- No. 94 Bliss Consolidated.
- No. 168¾ Toledo Toggle Drawing, 26" stroke, 56½ x 50" bolster, weight 120,000 lbs.
- No. 268¾ Toledo Toggle Drawing, 15" stroke, weight 175,000 lbs.

PUNCHES AND SHEARS

- Lennox Throatless Shear, b. d., ⅝" cap.
- No. 2 Badger State Alligator Shear, b. d.
- Cleveland model EF Double End Punch and Shear, m. d., 48" throat.
- Cleveland model EF Double End Punch and Shear belt, 36" throat.
- Hilles & Jones Style J Single End m. d. 48" throat, cap. 4" hole thru 1½" plate, weight 86,000 lbs.
- No. 4 CNC Ryerson Double End Coping and Notching Machine, m. d.

Write for our new stock list No. 38

O., 1000 Tennessee Ave., CINCINNATI, O.

Good Used Machinery

AIR COMPRESSORS; Curtis 9x9 dbl. cyl. vert.; Bury 12x12 horiz.; Curtis 6x6 vert.

BORING MILLS; Niles 36" c. d. Baush 44" m. d. N-B-P 54" s. p. d. Vert. with 2 heads; Barrett 5" bar c.d. horizontal; Bullard 51" Vertical 2 heads.

CUT-OFF MACHINE, Davis 6" cap. (3).

DRILLS (RADIAL); Mueller 2½", Foadick 2½", Prent. 3"; Carlton 4" all gear box dr.; Hammond 4" sensitive. Amer. 2½" M. D.

DRILLS (H. S. B. B.); H & W 2, 4, 5-sp.; Allen 2 & 6-sp; Avey. Demco, Lel-Giff. 1-sp.

DRILLS (MISC.); Baker No. 217 (2) & No. 314 Hvy. Duty; Hamilton 42" S.H.; Barnes 26" S.H. tap. attach.; Barnes 20" & 24" 1-sp. & 20" 4-sp. & 24" 3-sp. all grd. camel back; P & W No. 12 Multi-Sp.

GEAR CUTTERS; G & E 36", G & E 48", G & E 60" & B & S 26" s. p. d. automatic spur; Fellows 36" gear shaper.

GRINDERS; P & W 12" vert. surf.; Cin. No. 1½" & B & S No. 12 univ. tool, B & S Nos. 11 & 16 plain, Heald Nos. 60 & 65 Int. B & S No. 13 Univ. & Tool; Landis 10x30" Plain; B & S 10x48"; 4—Norton 6x32" plain, Heald No. 20 Rotary Surface" (3).

HONING MACH.; Hutto 2-spindle Vert. M. D.

KEYSEATERS; M & M No. 2 vert. Burr horiz.

LATHES; Reed-Prent. 16"x8" grd. hd.; LeBlond 18x8", Lehmann 18"x9", Hendey 18"x8"; Amer. 22x8", Whit. Blais. 22"x8"; Davis 22"x10"; L & S 20"x10", S-B & E 20"x10" q. c. g.

MILLING MACHINES; Ohio No. 24, Kemp. No. 3, B & S No. 3, Cleve. No. 1 s.p.d. univ. B. & S. No. 2, Amer. No. 1½, Cin. No. 3, B & S No. 3, Hendey No. 3, LeBlond No. 3, Mil. No. 3-B & Cinc. No. 3 s.p.d. pl. Becker Model "B" & No. 6 vert.; Kemp. s.p.d. Prod.; Ingersoll slab, m. d. 33", table 30½"x16".

PLANERS; Gray 30"x30"x10" 2 heads; Flather 24"x24"x6"; N-B-P 48"x20" 4 hds.; Gray 28"x28"x6" 1-hd.

PUNCH PRESSES; Bliss No. 19 o. b. i.; Toledo No. 35 cl. back Toledo No. 3 o. b. i.; Fer. No. PG-3 cl. back, L. & J. No. 3; Federal Nos. 1, 2, 3 and 4 o. b. i.; R. & K. No. 3 o. b. i.; Bliss No. 62 geared, Ferracute No. P-3.

SAWS (HACK); Racine 6x6" H. S. Atkins 8x8" H. S. Peerless 6x6" M. D. Univ. Shaping.

SHAPERS; S & M, G & E, Ohio, Mil., Q. City, Davis, Cin. 16"; Ohio & G & E 20"; S & M., Q. City, Rock, 24"; Ohio 26"; Cin. 24" s. p. gr. box; Rock. 24" m. d. gr. box; Rhodes 3½" Vertical.

SCREW MACHINES; W & S No. 6 Hand; Nat. Acme. Nos. 515, 52, 55, & 56 4-sp; Gridley 4-sp. ¾" & 4-sp. 1 ¼" cap.

TAPPING MACHINES; (2) Garvin No. 2 Vertical Automatic.

THREAD MILLER; Moline No. 10; Lees-Bradner.

TURRET LATHE; Bullard 36" vertical, rapid production.

Above is only small part of our large stock on hand.

McDONALD MACHINERY CO.
1531-35 No. Broadway, St. Louis, Mo.

PARTIAL LIST

AUTOMATICS

- 1" No. 19 Brown & Sharpe.
- 1" & 2" Cleveland "A".
- 1, 1 1/2, 1 3/4, & 2 1/2 Gridley "F".
- 1" Cleveland dbl. end "J".
- Nos. 53, 55, 56 Nat'l. Acme.
- 1 1/2" Cone.
- 1 1/2" Cleveland mod. M.
- 1" & 1 1/2" New Britain.
- 2" Cleveland mod. B.
- 2" Na'l Acme mod. B.
- 3 1/2" Gridley 1 spdl.
- Nos. 454 & 654 New Britain.
- Nos. 24 & 33 New Britain.
- Nos. 5A & 6A Potter & Johnston
- 12" Hartness tilted.
- 10" Bullard Continumatic.
- 14" Fay, late serials.

BORING MILLS

- 24" Bullard, V. T. L.
- 30" Bullard, single turret.
- 34" Colburn, single turret.
- 42" King, 1 standard, 1 turret head.
- 42" Detrick & Harvey.
- 60" Gisholt.

GRINDERS

- No. 2 Cincinnati centerless.
- Nos. 70, 72, 72A3 & 75 Heald.
- No. 12 Bryant internal.
- 26" No. 16 Blanchard.
- 12" Arter rotary surface.
- 12"x24" Diamond surface.
- 6"x10"x36" Norton surface.
- No. 2 Wilmarth & Morman surface.
- 30"x72" Springfield surface.
- 6"x18" to 16"x53" Landis.
- 6"x32" to 14"x72" Norton.
- 12"x24" & 12"x60" Modern.
- 12"x18" & 12"x36" Cincinnati.
- 16"x30" Webster & Perks univ.
- No. 2 Bath universal.
- No. 4 Brown & Sharpe univ.
- 20", 24" & 30" Gardner disc.
- Nos. 220 & 221 Badger disc.
- 30" Ransom 7 1/2 HP elec. snagger.
- 16"x48" Landis crank.
- 16"x32" Norton crank.
- 10"x24" & 10"x36" Norton cam.
- 30"x84" Diamond face.
- 8" Arter auto. piston ring.

GEAR CUTTERS

- Nos. 18H and 24H G. & E. hobbors.
- Nos. 1 and 5A Lees Bradner.
- No. 12 Barber Colman.
- Nos. 6 & 715 Fellows.
- 11" Gleason bevel.
- Nos. 3 & 4 Brown & Sharpe auto.
- 36" Newark automatic.

- 25" G. & E. auto. spur & bevel.
- No. 2 Bilton automatic.
- Lipe 2 spdl. chamferer.
- 15" Gleason quenching press.

PLAIN MILLERS

- Nos. 2, 3 and 4 Cincinnati.
- Nos. 1 1/2, 2 hvy., 3B & 4B B. & S.
- No. 4 Hendey.
- No. 4 LeBlond.
- No. 3 Kempsmith.
- No. 2 Rockford.

MILLERS UNIV. & VERT.

- No. 1 1/2 Rockford.
- No. 3 Cincinnati.
- No. 7 & 3A heavy Brown & S.
- No. 2 B. & S. vertical.
- No. 6 Becker vertical.

MILLERS PROD.

- 18" Cincinnati plain Mfg.
- 18", 24" & 48" Cincinnati automatic.
- 24" & 48" Cincinnati duplex.
- No. 1 Davis & Thompson drum.
- 24" Newton rotary.
- 28", 37" & 42" Briggs.
- 48" Ohio tilted offset.
- Nos. 1 & 2 Kent Owens hand.
- Kent Owens semi-automatic.
- 4" No. 770 Newton spline.
- No. 7 Becker, Lincoln type.
- Nos. 13B & 33 Brown & Sharpe.
- Trundel thread miller.

PLANERS

- 24"x24"x24" Cincinnati crank.
- 24"x24"x6" Liberty openside.
- 30"x30"x12" Cleveland openside.
- 32"x32"x12" Niles.
- 36"x36"x8" Gray.
- 36"x36"x12" Gray.
- 36"x36"x16" Cleveland.
- 48"x36"x10" Liberty.

PRESSES

- No. 19 & 21 grd. Bliss OBI.
- No. 5 grd. Toledo OBI.
- No. 75 Toledo geared.
- No. 55 1/2 & 56 1/2 Toledo.
- No. 74 Bliss.
- Nos. 64 & 65 Consolidated.
- No. 63 Michigan.
- No. 7 Rockford.
- No. 94 Consolidated.
- Nos. PG4 & PG5 Ferracute.
- No. 25 1/2 Consolidated horn.
- No. 23 Consolidated horn.
- 600 ton Cleveland coining.
- Nos. 1 1/2 B. & S. Bliss Toggle.
- No. 266 Consolidated cam drawing.
- No. DDG54 Ferracute cam drawing.
- No. 2 Standard screw.

2000 TOOLS IN STOCK. SEND FOR LIST.

MILES MACHINERY CO.
Saginaw, Michigan

**Chicago's Largest and Most Complete Stock
Electric Power Equipment**

Over Quarter Century Satisfactory Service

WELDERS

- 1-500 amp. Westinghouse.
- 2-300 amp. and 2-200 amp. Lincoln.

A. C. MOTORS

- 1-1000 H.P. C. Whl. Syn. 600 RPM.
- 1-750 H.P. E. Mch. Syn. 514 RPM.
- 1-500 H.P. Al.-Ch., 450 rpm. sl. ring.
- 3-200 H.P. slip ring 720 RPM.
- 1-200 H.P. Brk. s. ring. 900 RPM.
- 1-150 H.P. Al. Ch. sq. cg. 1200 RPM.
- 1-100 H.P. G. E. vert. 900 RPM.
- (Many additional, down to 1/20 H.P.)

D. C. Motors & Generators

Large complete stock 115 & 230 volt.

PLATERS

- 1-4000 amp. 6/12 v. Burke.
- 1-2500 amp. 6/12 v. Kager.
- 1-1500 amp. 6/12 v. Columbia.
- 1-1350 amp. 6, 7 1/2 v. Rochester.

A. C. GENERATORS

- 1-750 KVA. C. Whl. 600 RPM.
- 1-500 KVA. E. Mch. 514 RPM.
- 1-375 KVA. G. E. 225 RPM.
- 1-240 KVA G. E. 720 RPM.
- 1-165 KVA Wgse. 225 RPM.
- (Many additional all capacities)

ENG. GENERATORS

- 1-225 KVA & 1-150 KVA, atm.

TRANSFORMERS

- 3-100 KVA Mal. 12M-460 v.
- 2-50 KVA Pbgh. 2300-440/220 v.

M-G SETS

All cap., 720 kW down.

Frequency Changers

- 1-90 K.W. 60/120 cy.

TURBO GENERATORS

- 1-1250 KW condensing.
- 2-750 KW condensing.

CATALOG SENT ON REQUEST

CHICAGO ELECTRIC CO.

1340 W. CERMAK ROAD

CHICAGO

- LOOK OVER THIS LIST -

BRAKES-SHEARS & ROLLS

- 92"x11" L & A square shear, 10" gap.
- 42"x11" Cleveland Shear, 6" (Gap)
- 96" Chicago 3/16 Power Finger brk.
- 72" Power Sq. Shear 14 ga.

GRINDERS

- Diamond surface 16"x48" table.
- Double disc grinders—all sizes.
- No. 3 W. & M. 10x24" Surface.
- No. 13 B. & S. Universal, b. d.
- No. 1 LeBlond Univ. T & C Grinder.

LATHES

- 14"x 6' Lodge & Shipley q. c.
- 16"x8' Monarch geared head m. d.
- 26"x12' Bridgeford, q. c.
- 30"x20' Niles S. B. grd. cone.
- 36"x14' American triple geared.
- 32"x12' Boye & E... cone head q. c.
- 36"x36' LeBlond q. c. motor drive.
- 36"x18' Fifeild 3 step tr. grd.

PLANERS AND SHAPERS

- 20" Kelley Shaper, m. d. thru g. b.
- 20" Cincinnati Shaper Cone Drive.
- 24" Cincinnati Shaper, cone drive.
- 36"x12' Gray Planer 2 Heads.

MILLING MACHINES

- No. 2 Cincinnati univ. 45 cone drive.
- No. 2A-B & S univ S. P. Drive.
- No. 2 B. & S. Plain Cone Drive.
- No. 34 Oesterlein plain, cone drive.
- No. 4 LeBlond Pl. 3 step S. Cone.

MISCELLANEOUS

- Boring Mill, 60" vertical.
- 4 Spindle Barnes Camel back drill.
- Bolt cutter, 1 1/2" Acme.
- Gear cutters, Nos. 3, 4 B. & S.
- Straightening rolls, 54" H. & J.
- Gray Nibbler, 3/16" cap.
- No. 281 FERRACUTE, Double Crank Back Geared Overhang Press, 3" Str., Belt Dr; Bed 32x24.
- No. 92C TOLEDO, Double Crank Solid Frame Single Back Gr Press Belt Drive, Stroke 3"; Bed 42x30.
- No. 5A Toledo & No. 21 Bliss o.b.i.

RADIALS

- 3' Bickford, m. d.
- 3' Drees, 4' Mueller, s. p. d.

WELDERS

- 10 to 40 K. W.—Spot Welders.

Jones—Buys, Sells and Trades—Send for Stock List

The Jones Machine Tool Co.
Front & Pike Sts.,
Cincinnati, Ohio

INTERSTATE HAS IT!

SEND FOR OUR GENERAL CATALOG



Boring Mills, Bullard 36" rapid production; side head.
Brakes, power, Chgo. Steel 10' 3/8"; 10' 10 ga.; 8' 10 ga.; 8' 1/4".
Drill, rad., 5' Fos. hvy. duty, s. p.
Gang Slitter, 36" Yoder, m. d., with levelling rolls.
Grinder, No. 25 Heald Surface, 16" mag. chuck, hyd. feed.
Grinder, disc, 30" No. 24 Gardner, b. b. 53" horiz.
Heat Treating Furnace, large, conveyor type. Complete with pyrometer—\$5000.
Ironworkers, Schatz, 6x6 angles.
Ironworker, Universal, Schatz, 6x6 angles.
Lathes, 30"x16' Lodge & Shipley, taper att.; 26"x16' Bradford, tap. att.; 25"x16' Ryerson, grd. hd., m. d.
Lathe, Tool room, 14"x7' Hendey, serial No. over 24,000.
Lathe, 36"x30' Lodge & Shipley, 24' centers.
Leveller, 48", 17 rolls, motor drive.
Millers, planer type, 36"x168" Ingenoll.
Millers, Univ., No. 2A B. & S., div. hd., motor drive.
Planers, 72"x18', 3 heads.
Press, perforating, gate type 6' bet. housings, complete.
Press, Hyd., Watson Stillman, 200 ton, 2-10" rams, 38x62 bet. posts.
Press, dbl. crk. tog. No. 408-B, Bliss 84" bet. upr. 56x84 bed, tie rod.
Press, dbl. crank, Niagara, No. 615, 62" bet. upr., shaft 8" diam., tie rod.
Press, dbl. crank, No. 6A Bliss, tie rod, 48" bet. uprights, motor drive.
Presses, open back, No. 9 Kohler, 100 ton, b. g., 7" stroke.
Press, OBI, No. 5 Loshbough Jordan, b. g., 4" stroke.
Press, OBI, No. 5 Toledo, b. g.
Press Brake, 10' 10 ga. OHL, excellent condition.
Roll, 10' 1/2" Pyramid type.
Rolls, 14' Bertsch, pwr. elevation, drop end, m. d.; 8" diam. rolls.
Rolls, 10' 3/16" Hilles & Jones, Initial type drop end.
Saw, Friction, No. 2 Ryerson.
Screw Machine, auto., No. 506 New Britain 6 spdl., m. d., practically new.
Shears, power, 13' 5/6" Bertsch, with hold-down, m. d.
Shear, power, 10' 3/8" United Eng.
Miller, Univ., No. 3 Cincinnati, complete with div. hd., vert. bd., slott. att., rotary table and vice.
Press, No. 59 Toledo, s. s., 18" stroke, tie rod.
Shears, pwr., 25 new Pexto shears in stock 3' to 10'.
Shaper, 24" Ohio Dreadnaught, tilt top tbl., force feed lub., motor driven.
Turret Lathes, Warner & Swasey Univ. Nos. 1A, 2A and 4A m. d.
Turret Lathes, Univ. No. 6 Warner & S. grd. hd., m. d. ser. over 220,000.
Welders, spot, 20 kva Taylor, m. d.; 40 kva Am. Elec. Fusion; 24 kw Federal.

WHAT HAVE YOU FOR SALE? Don't let your surplus equipment stand idle. Trade it in on Interstate reconditioned equipment.

INTERSTATE

MACHINERY CO.

100 S. CLINTON ST., CHICAGO

SPOT DELIVERY

4' and 5' American Radial Drills.
Diamond 12"x36" Surface Grinder, M. D.
Teromatic No. 13 Internal Grinder, M. D.
Gridley 4-Spindle Automatic Chucking Machine 4½" capacity, Model
"H", M. D.
14" Fay Automatics with back angle attachment.

*Over 500 Machine Tools to select from.
Send us your inquiries.*

Industrial Mch. Co., 2100-2300 Fletcher Ave., Indianapolis, Ind.

"BURNS BEST BARGAINS"

Air Compressor, Sullivan 10x8 tex-ropedrive.
Air Compressor, Bury 6x6 horiz. class L.
Broach, La Pointe No. 1.
Bulldozer, Rock River Bulldozer & Bender steel const. M. D.
Drill Multiple, Natco B-16—12-Spindle M. D.
Drill Multiple, Bausch 20-spindle M. D.
Drill, Colburn D-4—24".
Drill, Moline No. 5 Hole Hog.
Drills Radial, Western 4', American 3' sensitive.
Drill Radial, Bickford No. 3—6' full univ.
Die sinker, Pratt & Whitney No. 4, cherrying attach.
Grinder, Landis 15x8 Hydraulic Int. M. D.
Grinder, Van Norman No. 3½ Radius.

SPECIALS

Miller, Ingersoll 48x24x12, three heads, M. D.
Miller, Ingersoll 24x24x10 M.D. 1-hd. on rail 2-side hds.
Turret Lathe, Warner & Swasey No. 3-A.

Grinder, Besly No. 1 double disc, M. D.
Keyseater, Mitta & Merrill No. 0 and 3 with broaches.
Lathe, McCabe double spindle 26—48x12".
Lathe, Pratt & Whitney 1x16 automatic.
Press, Toledo No. 30 Bench.
Press, Bliss No. 61 Reducing.
Press, Bliss, No. 66 double action.
Press, Zeh & Hahnemann No. 8½ power percussion.
Press, American Can No. 5 Inc. F. W. T.
Press, Walsh No. 5½ Inc. F. W. T.
Press, Bliss-Styles No. 259 Toggle Joint Pendulum.
Punches, Kling No. 2 & No. 4.
Roll, Beloit No. 3-E—6' slip.
Roll, 10' power, cap. ¼" C. P.
Saw, Klemm No. 2 metal tilting.
Shear, Kent 4' power, cap. 10-ga.
Shear, Niagara No. 230 power, cap. 16-ga.
Shear, Pexto 36" gap.
Shear, Badger, No. 27 splitting.
Shear, Quickwork rotary 60", cap. 14 ga.
Shear, Yoder 6'-14 ga.

F. W. BURNS MACHINERY CO.

1441 N. Third St.,

Milwaukee, Wis.

BARGAINS with SAFETY

BORING MILLS, Horiz.

- 2 1/2" bar, N. B. P. knee, A. C., M. D.
- 3" bar, Rochester, table type.
- 3" bar, Defiance No. 5, table.
- 3 1/2" Landis, No. 38, Floor.
- 5" bar, Niles Floor Type.

BORING MILLS, Vertical

- 24" Bullard, Rapid Production.
- 42" Bullard, Power Rapid Traverse.
- 60" Colburn, P. R. T.
- 100" Pond heavy duty.

DRILLS, Radial

- 2', 3 1/2', 4' & 5' Amer. tri. grd.
- 4' x 5' Amer. tri. purpose.
- 3', 4' & 5' Muellers, gear box.
- 6' American, univ. & plain, (2).
- 3' American, sensitive, tapping.
- 2, 4 & 6 spindle Ailens.
- 4 spindle Kokomo, 12 1/2" overhang.
- 2 spindle Avey, 1 tapping spindle.
- 32" Cincinnati Bickford, Tapping, M. D.

GRINDERS

- 8" Heald rotary Surface No. 200.
- No. 2 Fraser Univ. 10" x 30".
- 10" x 36" Landis Plain (3).
- 12" Heald rotary surface No. 22.
- 12" x 32" No. 2 Landis Univ.
- 12" x 36" Landis Plain.
- 12" x 52" Landis Self Cont.
- 16" x 48" Landis crankshaft.
- 16" x 56" Norton Self Cont.
- 26" x 96" Landis Self Cont.
- 26" x 120" Landis Self Cont.
- 48" Badger face, Hyd. Feed.
- No. 2 Diamond 36" x 12"
- 84" x 12" Diamond Surface.
- No. 55, 60 and 65 Heald Cylinder.
- No. 70 Heald Internal.
- 53" Besley Vert. Spin. Disc.
- 14" P & W Surface M. D.
- No. 2 B. & S. Surface M. D.
- No. 13 B. & S. universal.
- No. 103 Rivet Internal.

LATHES

- 16" x 12" South Bend.
- 18" x 5' Reed Prentice grd. hd.
- 18" x 5' x 8' Fay Scott Gap.
- 24" x 12" Putnam O. C. G., Cone.
- 24" x 19" American L. C. G.
- 28" x 17" Chard, Grd. Hd.
- 30" x 12" S & B Cone, T. A.
- 32" x 22" Schumacher Boye.
- 36" x 30" N. B. P. Grd. Hd., M. D.
- 60" x 23" Putnam, Cone.
- 60" x 30" Pittsburg Grd. Hd.

MILLERS, Production

- 4" Pratt & Whitney Spline.
- 6" & 12" Pratt & Whitney.
- 38" Cincinnati Semi Automatic
- No. 7H Becker.

MILLERS, Vertical

- Model CS Becker Continuous.
- Model B Becker, feeds 36 x 14 x 15, spd.
- No. 5B Becker, Cone.
- No. 2 Knight.

MILLERS, Plain

- No. 5 Cincinnati Grd. Hd. P. R. T.
- No. 3 Cincinnati Univ., M. D.
- No. 3G Hendey Grd. Hd.
- No. 2B Heavy, B. & S.
- No. 3B Heavy B & S. Geared Head.

PLANERS

- 84" x 84" x 18" N. B. P., M. D 4 hds.
- 72" x 72" x 14" Betts 4 Hds.
- 72" x 60" x 16" Detrich & H. open side.
- 48" x 48" x 10" D & H Openside.
- 42" x 36" x 12" & 24" x 36" Cincinnati, M.
- 36" x 36" x 18" Sellers, 4 Heads.
- 36" x 36" x 14" NBP 3 hds.
- 36" x 36" x 8" D & H. Openside, m. d.
- 30" x 30" x 10" D & H Openside.
- 24" Lynd Farquhar Openside.

PRESSES

- No. 12 - 7B Z & H dble. crank, 45".
- No. 8 Z. & H. Percussion.
- 400 ton N. B. P. Hor. Hyd. Carwheel.

ROLLS

- 10' x 1 1/2" Pyramid, A. C., M. D.
- 17' x 1 1/2" Niles A. C. m. d.

SAWS

- 10 x 10 Napier Metal Band Saw.
- 6 x 6 Avey Milband.
- No. 2B Gorton Internal, 7 1/2".
- 6" Peerless univ., shaping.

TURRET LATHES

- Nos. 3A & 4, W. & S. Univ.
- 3 1/2" x 36" & 2 1/2" x 26" Acmes, Grd. Hd.
- No. 5 Foster, 1 1/2" x 16" bar cap.
- 4L Gisholt—no cross slide carriage.
- 24" Gisholt Cone 5 1/2" H. S.
- 26" Libby, 7 1/2" spindle hole M. D.
- 2 1/2" x 24" & 3" x 36" J. & L.
- No. 1 American Fox, Bk. Grd.

MISCELLANEOUS

- 15" & 18" Drill Slotters.
- 18" N. B. P. Slotter, A. C., M. D.
- 10' x 10 ga. Chicago Apron Brake.
- 18" Gridley Automatic 4 Spindle.
- 24" Gridley Single Spin. M. D. Auto.
- Nos. 23, 24 & 34 New Britain chkg.
- Holt Header, 2" Ajax.
- 28" Landis Bolt Cutter.
- Nos. 3B & 4 LaPointe, Screw.
- Flanger, 1 1/2" McCabe Pneu.
- 11" Gleason Bevel Generator M. D.
- Hammers, 6B, 5N & 2B Nazels.
- Pipe machine, 6" Oster M. D.
- 2" Bignall & Keeler Pipe Machine.
- 8" and 6" Saunders, Pipe Machine.
- 24", 20", 16" Smith & Mills Cone.
- Shaper, 24" G. & E. Cone.
- Shear, 10' x 3/16" Loy & Nawrath.

Send for complete stock list

BENNETT-RAFKIN MACHINE TOOL CO., Inc.
OFFICES: 30 CHURCH ST., NEW YORK CITY

SPOT DELIVERY

4' and 5' American Radial Drills.
Diamond 12"x36" Surface Grinder, M. D.
Teromatic No. 13 Internal Grinder, M. D.
Gridley 4-Spindle Automatic Chucking Machine 4½" capacity, Model
"H", M. D.
14" Fay Automatics with back angle attachment.

Over 500 Machine Tools to select from.

Send us your inquiries.

Industrial Mch. Co., 2100-2300 Fletcher Ave., Indianapolis, Ind.

"BURNS BEST BARGAINS"

Air Compressor, Sullivan 10x8 tex-rope drive.
Air Compressor, Bury 6x6 horiz. class L.
Broach, La Pointe No. 1.
Bulldozer, Rock River Bulldozer & Bender steel const. M. D.
Drill Multiple, Natco B-16—12-Spindle M. D.
Drill Multiple, Bausch 20-spindle M. D.
Drill, Colburn D-4—24".
Drill, Moline No. 5 Hole Hog.
Drills Radial, Western 4', American 3' sensitive.
Drill Radial, Bickford No. 3—6' full univ.
Die sinker, Pratt & Whitney No. 4, cherrying attach.
Grinder, Landis 15x8 Hydraulic Int. M. D.
Grinder, Van Norman No. 3½ Radius.

SPECIALS

Miller, Ingersoll 48x24x12, three heads, M. D.
Miller, Ingersoll 24x24x10 M.D. 1-hd. on rail 2-side hds.
Turret Lathe, Warner & Swasey No. 3-A.

Grinder, Besly No. 1 double disc, M. D.
Keyseater, Mitts & Merrill Nos. 0 and 3 with broaches.
Lathe, McCabe double spindle 26—48x12'.
Lathe, Pratt & Whitney 1x18 automatic.
Press, Toledo No. 30 Bench.
Press, Bliss No. 61 Reducing.
Press, Bliss, No. 68 double action.
Press, Zeh & Hahnemann No. 8½ power percussion.
Press, American Can No. 5 Inc. F. W. T.
Press, Walsh No. 5½ Inc. F. W. T.
Press, Bliss-Styles No. 259 Toggle Joint Pendulum.
Punches, Kling No. 2 & No. 4.
Roll, Beloit No. 3-E—6' slip.
Roll, 10' power, cap. ¼" C. P.
Saw, Klemm No. 2 metal tilting.
Shear, Kent 4' power, cap. 10-ga.
Shear, Niagara No. 230 power, cap. 16-ga.
Shear, Pexto 36" gap.
Shear, Badger, No. 27 splitting.
Shear, Quickwork rotary 60", cap. 14 ga.
Shear, Yoder 6'-14 ga.

F. W. BURNS MACHINERY CO.

1441 N. Third St.,

Milwaukee, Wis.

BARGAINS with SAFETY

BORING MILLS, Horiz.

- 2 1/2" bar, N. B. P. knee, A. C., M. D.
- 3" bar, Rochester, table type.
- 3" bar, Dehance No. 5, table.
- 3 1/2" Landis, No. 35, Floor.
- 5" bar, Niles Floor Type.

BORING MILLS, Vertical

- 24" Bullard, Rapid Production.
- 42" Bullard, Power Rapid Traverse.
- 60" Colburn, P. R. T.
- 100" Pond heavy duty.

DRILLS, Radial

- 2", 3 1/2", 4" & 5" Amer. tri. grd.
- 4" x 5" Amer. tri. purpose.
- 3", 4" & 6" Muellers, gear box.
- 6" American, univ. & plain, (2).
- 3" American, sensitive, tapping.
- 2, 4 & 6 spindle Allens.
- 4 spindle Kokomo, 12 1/2" overhang.
- 2 spindle Avey, 1 tapping spindle.
- 32" Cincinnati, Bickford, Tapping, M. D.

GRINDERS

- 8" Heald rotary Surface No. 200.
- No. 2 Fraser Univ. 10" x 30".
- 10" x 36" Landis Plain (3).
- 12" Heald rotary surface No. 22.
- 12" x 32" No. 2 Landis Univ.
- 12" x 36" Landis Plain.
- 12" x 52" Landis Self Cont.
- 16" x 48" Landis crankshaft.
- 16" x 50" Norton Self Cont.
- 26" x 96" Landis Self Cont.
- 26" x 120" Landis Self Cont.
- 48" Badger face, Hyd. Feed.
- No. 2 Diamond 36" x 12".
- 84" x 12" Diamond Surface.
- No. 55, 60 and 65 Heald Cylinder.
- No. 70 Heald Internal.
- 83" Besley Vert. Spin. Disc.
- 14" P & W Surface M. D.
- No. 2 B. & S. Surface M. D.
- No. 13 B. & S. universal.
- No. 103 Rivet Internal.

LATHES

- 16" x 12" South Bend.
- 18" x 8" Reed Prentice grd. hd.
- 18/36" x 8" Fay Scott Gap.
- 24" x 12" Putnam Q. C. G., Cone.
- 24" x 19" American L. C. G.
- 28" x 17" Chard, Grd. Hd.
- 30" x 12" S & B Cone, T. A.
- 32" x 22" Schumacher Boye.
- 36" x 30" N. B. P. Grd. Hd., M. D.
- 60" x 23" Putnam, Cone.
- 60" x 30" Pittsburg Grd. Hd.

MILLERS, Production

- 4" Pratt & Whitney Spline.
- 8" & 12" Pratt & Whitney.
- 28" Cincinnati Semi Automatic
- No. 7H Becker.

MILLERS, Vertical

- Model CS Becker Continuous.
- Model B Becker, feeds 36 x 14 x 15, spd.
- No. 5B Becker, Cone.
- No. 2 Knight.

MILLERS, Plain

- No. 5 Cincinnati Grd. Hd. P. R. T.
- No. 3 Cincinnati Univ., M. D.
- No. 3G Hendey Grd. Hd.
- No. 2B Heavy, B. & S.
- No. 3B Heavy B & S. Geared Head.

PLANERS

- 84" x 84" x 18" N. B. P., M. D. 4 hds.
- 72" x 72" x 14" Betts 4 Hds.
- 72" x 60" x 16" Detrich & H. openside.
- 48" x 48" x 10" D & H Openside.
- 42" x 36" x 12" & 24" x 8" Cincinnati, M.
- 36" x 36" x 18" Sellers, 4 Heads.
- 36" x 36" x 14" NBP 2 hds.
- 36" x 36" x 8" D. & H. Openside, m. d.
- 30" x 30" x 10" D & H Openside.
- 24" Lynd Farquhar Openside.

PRESSES

- No. 12 - 7B Z & H dble, crank, 48".
- No. 84 Z & H. Percussion.
- 400 ton N. B. P. Hor. Hyd. Carwheel.

ROLLS

- 10' x 1 1/2" Pyramid, A. C., M. D.
- 17' x 1 1/2" Niles A. C. m. d.

SAWS

- 10 x 10 Napier Metal Band Saw.
- 6 x 6 Avey Milband.
- No. 2B Gorton Internal, 7 1/2".
- 6" Peerless univ., shaping.

TURRET LATHES

- Nos. 3A & 4, W. & S. Univ.
- 2 1/2" x 36" & 2 1/2" x 26" Acmes, Grd. Hd.
- No. 5 Foster, 1 13/16" bar cap.
- 4L Gisholt—no cross slide carriage.
- 24" Gisholt Cone 5 1/2" H. S.
- 26" Libby, 7 1/2" spindle hole M. D.
- 2 1/2" x 24" & 3" x 36" J. & L.
- No. 1 American Fox, Rk. Grd.

MISCELLANEOUS

- 15" & 18" Drill Slotters.
- 15" N. B. P. Slotter, A. C., M. D.
- 10" x 10 ga. Chicago Apron Brake.
- 18" Gridley Automatic 4 Spindle.
- 24" Gridley Single Spin. M. D. Auto.
- Nos. 23, 24 & 34 New Britain chkg.
- Bolt Header, 2" Ajax.
- 24" Landis Bolt Cutter.
- Nos. 3B & 4 LaPointe, Screw.
- Flanger, 1" McCabe Pneu.
- 11" Gleason Bevel Generator M. D.
- Hammers, 6B, 5N & 2B Nazels.
- Pipe machine, 6" Oster M. D.
- 2" Bignall & Keeler Pipe Machine.
- 8" and 6" Saunders, Pipe Machine.
- 24", 20", 16" Smith & Mills Cone.
- Shaper, 24" G. & E. Cone.
- Shear, 10" x 3/16" Loy & Nawrath.

Send for complete stock list

BENNETT-RAFKIN MACHINE TOOL CO., Inc.

OFFICES: 30 CHURCH ST., NEW YORK CITY

REASONABLY PRICED TOOLS

No. 105 Bliss Consolidated Double Crank Inclined Press flywheel type, arranged for motor, like new.

12"x72" Landis Plain Grinder, Self Contained C S.

No. 2B Brown & Sharpe Plain Miller, single pulley drive.

Two 18"x8" Greaves Klusman dble B G, quick change lathes.

24"x15" American dble. B. G., Q. C. Lathe with Taper.

36" Cincinnati BG slid. head drill, tapping attach.

No. 4 Quint turret drill, six stations.

24" Bullard New Era vertical turret lathe.

No. 5 Cleveland Bar Shear—cap. 4"x4" soft steel.

No. 22 Heald Rotary Surface Grinder, 12" Magnetic Chuck.

1 1/4" Acme single bolt cutter class A. Very good.

2"x24" and 3"x36" Jones & Lamson turret lathes, priced cheap to sell quickly.

Two 21" Gisholt turret lathes, belt drive.

No. 6 Becker vertical miller with ball bearing countershaft.

Several nice Model A Cleveland automatics from 5/8" to 3 3/4" bar capacity.

A. D. White Machinery Co., 108 N. Jefferson St.,
CHICAGO, ILL.

Boring Mills and Broaching Machines

1—26" Bullard Mill with side head, single pulley dr.

2—42" Bullard Boring Mills, arranged for m. d.

1—42" King Mill, arranged for m. d.

2—48" Colburn Mills, arranged for m. d.

1—50" Bullard Mill, b. d.

1—52" King Boring Mill, arranged for m. d.

1—52" Gisholt Boring Mill, arranged for m. d.

1—No. 3-A Universal 3" bar Horizontal, m. d.

1—No. 430 W. F. & John Barnes Double End Hydraulic Boring and Drilling Machine, m. d.

1—Rockford Single End Hydraulic Horizontal Boring Mill, m. d., with 54" 2-station table.

1—No. 3 LaPointe Single Screw Broach, b. d.

1—No. 4 LaPointe Single Screw Broach, m. d.

1—Twin 10 Oilgear Hydraulic Broach, m. d.

1—No. 3 Oilgear Hydraulic Broach, b. d.

Your Inquiries Will Be Appreciated.

WE CARRY A FULL STOCK OF USED MACHINE TOOLS

The Strong, Carlisle & Hammond Co.

1392 West Third St.

2832 East Grand Blvd.

CLEVELAND, OHIO

DETROIT, MICHIGAN

-PARTIAL LIST-

Automatics

- No. 2G Brown & Sharpe.
- 24", 34" and 44" Gridley agl. spindle.
- 44" Cleveland "Model A"

Boring Machines (Hor.)

- 5" bar N.B.P. floor type.
- 5" bar Newton Portable.
- No. 3 Hamilton, 44" bar.
- No. 3-A Universal, 3" bar.
- 34" Rochester floor type.
- No. 1 Cleveland, 24" bar.

Boring Mills (Vertical)

- 24", 36", 42" Bullard, "New Era".
- 30", 52" and 62" King.
- 42", 48", 54" and 60" Colburn.

Drills (Ball Bearing)

- 1, 2, 3, 4, 6 Spindle L-G.
- 1, 2, 3, 4, 6 Spl. Henry & Wright.
- 4 spindle Demco, p. f.

Drills (Mfg.)

- 32" Cinn.-Bickford sliding head.
- No. 2 Colburn, 1, 2, 3 and 4-spld.
- No. 210 1&2 spld. Barnes.
- No. 3-24" Defiance.
- Nos. 121, 314, Baker.
- No. 2 Western multiple.
- No. 14 Natco Multiple.
- No. 4 Bausch, mult.

Drills (Radial)

- 3" Carlton "sensitive".
- 5" American triple purpose.
- 5" American, full univ., m. d.
- 6" American Triple purpose.

Gear Cutters

- Nos. 2, 3 & 12 Barber-Colman.
- No. 4 Pfauter hobber.
- No. 18-H G. & E. hobber.
- No. 16HS Gould & Eberhardt.
- Nos. 6, 61, 62, 65, 615, 625 Fellows.
- No. 4-36" & 48" B. & S.
- No. 2-60" Goss hobber.
- No. 6-60" and 72" B. & S.
- 96" Newton heavy duty.

Grinders (Plain)

- 16"x48" Landis crankpin.
- Heim Centerless.
- 6"x32" Norton.
- 10"x19" 24", 36" Norton.
- 10"x50", 72", 96" Norton.
- 10"x36", 52" Landis.
- 14"x36", 50", 72", 96" Norton.
- 18"x96" Norton, m. d.
- 18"x144" Norton, m. d.
- 20"x168" Landis, m. d.

Grinders (Misc.)

- No. 2 Brown & Sharpe univ.
- No. 4-12"x66" Landis.
- No. 70 Heald, Internal
- No. 10 Blanchard surface.

No. 16A Blanchard surface.

16" Arter rotary surface.

18"x17"x6", 8" Norton, o. s., surf.

No. 1 Gardner, hyd., face.

Lathes

- 14"x8" Lodge & Shipley.
- 16"x 6" American.
- 16"x8" L. & S., T. A.
- 18"x6" Lodge & Shipley.
- 20"x8" Lodge & Shipley.
- 20"-224"x14 L. & S. sel. g. h.
- 22"-244"x12" L. & S.
- 24"-274"x12", L. & S. sel. g. h.
- 30"x11" American geared head.
- 30"x16" American.
- 36"x30" Rahn-Larmon grd. hd.
- 54"x23" Johnson, T. G.
- 66"x21" Putnam t.g., m. d.

Millers (Plain and Universal)

- Nos. 0, 14, 2, B. & S.
- Nos. 2 & 3 Cinn. h. p., s. p. d.
- Nos. 2-B, 3-B Milwaukee.
- Nos. 2-B, 3-B, 4-B B. & S.
- Nos. 4 Cinn. h. p., s. p. d.

Millers (Mfg.)

- No. 5 48" Cincinnati hydromatic.
- 18" & 24" Cincinnati automatic.
- No. 33-60" Kemp Smith.
- 6" and 48" P. & W. thread.
- No. 3E & No. 4 Lees-Brad. thread
- 36"x36"x12" Newton Duplex.
- 38"x44"x20" Ingersoll slab.

Millers (Vert.)

- Nos. 2 & 3 Cincinnati h. p.
- No. 3-B Milwaukee.
- No. 5-B Becker.
- No. 6 Becker.
- No. C-2 Becker.

Planers

- 24"x24"x12" Gray.
- 30"x30"x6", 18" Cincinnati.
- 30"x30"x14" Gray, rev. m. d.
- 36"x36"x8, 15" Cincinnati.
- 36"x36"x14"-24" Cleveland o.s.
- 36"x36"x24" Gray.
- 42"x42"x30" N-B-P, Rev. m. d.
- 48"x48"x10", 16" N-B-P.
- 60"x48"x16" Gray max. service.
- 72"x60"x16" American.

Shapers

- 16" Walcott.
- 16" Stockbridge.
- 24" Gould & Eberhardt.

Turret Lathes

- No. 4 Warner & Swasey, univ.
- No. 1-A Warner & Swasey.
- No. 2-A Warner & Swasey.
- No. 3-A W. & S., Timken brg.
- No. 4-A Warner & S., 74" H. S.
- No. 4-L Gisholt, 94 h. s.

HILL-CLARKE MCHY. CO.

645 Washington Blvd.,

Chicago, Ill.

LATHES—

- 14x6—SIDNEY—Cone Drive.
- 16x8—AMERICAN—Cone Drive, Taper Att.
- 18x8—SCHUMACHER BOYE & EMMES—Cone Dr.
- 17x11—LEBLOND—Geared Head,
- 30x12—LODGE & SHIPLEY—Cone Dr., Taper Att.

MILLERS—

- No. 1 CINCINNATI UNIVERSAL—Cone Drive.
- No. 2 CINCINNATI PLAIN—Cone Drive.
- No. 3 CINCINNATI PLAIN—Cone Drive.
- No. 3 KEMPSMITH PLAIN—Cone Drive.

GEAR CUTTERS—

- No. 5-A LEES & BRADNER.
- No. 3 BARBER COLMAN.
- No. 12 BARBER COLMAN.
- 15" GLEASON—Spiral.
- No. 6—60" BROWN & SHARPE.

Indianapolis Machinery & Supply Co., Inc.
1959-69 South Meridian St., Indianapolis, Indiana

Bolt cutter, 2 $\frac{1}{2}$ " Landis, lead screw.
Bolt cutter, 1 $\frac{1}{2}$ " Nat'l. single head.
Brake, 10 $\frac{1}{2}$ "x1 $\frac{1}{2}$ " Ohl Power Press.
Broach, No. 3XA Oilgear hyd.
Die filer, No. 3 Rearwin, motor drive.
Drill, 5' Dreses, univ. radial arr. m. d.
Drill, 2 $\frac{1}{2}$ " Fosdick radial, m. d.
Drill, 26" Barnes sldg. hd. tap. att.
Drill, No. 2 Avey, arr. m. d.; 12" ovhg.
Drill, 1 & 2 spindle Allen h. s. b. b.
Drills, No. 2, 4 spindle Avey matics.
Drill, 4 spdl. L-G. No. 3 MT. pwr. fd.
Grinders, No. 1, 2 & 3 B. & S. univ.
self contained, m. d. 3 motors.
Grinder, No. 11 B. & S. plain, m. d.
Grinder, No. 25 Heald hyd. rot. surf.
Grinder, 12x36 Thompson, univ m. d.
Grinder, No. 1 B & S. univ., belt dr.
Grinder, No. 2 B. & S. surface m. d.
Grinder, No. 2 Reid surface, m. d.
Grinder, No. 3 Oakley univ. T & C.
Grinder, No. 3 Wilmarth & Mor. surf.
Hammer, 3A High Speed Riveting.
Keyseater, No. 8 Baker, 1" cap.
Lathe, 20"x11" Hamilton, q. c. g.
Lathe, 24"x12" S. & Boye, q. c. g.
Lathe, 20"x10" B. & Emmes, q. c. g.
Lathe, 20"x9" Hamilton, q. c. g.
Lathe, 18"x8" Hendey, q. c. g.

Lathe, 16"x8" Mon. g. h. Tim. br., t. a.
Lathe, 16"x6" C. & J., grd. hd., t. b.
Lathe, 15"x6" C. & J. cone hd. new.
Lathe, 14"x6" Hendey, q. c. g.
Lathe, 12"x5" Hendey, q. c. g.
Miller, No. 2 Van Norman.
Miller, No. 3B B. & S. plain, m. d.
Miller, No. 2B B. & S. plain, m. d.
Miller, No. 2A B. & S. univ., m. d.
Miller, No. 4B Becker, vertical.
Miller, 1-M Cinn. vertical, s. p. d.
Miller, No. 4 Cincinnati plain.
Miller, No. 24 Rockford universal.
Press, No. 95-E Toledo, 60"x24".
Press, No. 744 Bliss, grd; tie rod.
Press, No. 4A Bliss horn; stile type.
Press, DD 201 Ferracute, 200 ton cap.
Presses, Rockford, all sizes in stock.
Saw, 6"x6" Peerless univ. shap, m. d.
Saw, No. 6 Marvel, high spd. 6"x6".
Scleroscope, Model "C & D" Shore
Screw mch., 14" Cleveland auto. "A"
Shaper, 16" Gould & E., b. g.
Shaper, 17" Averbek, back geared.
Shapers, 20" G. & E. & Milwaukee.
Shaper, 24" Milwaukee, back geared.
Shaper, 24" American & Stock, m. d.
Slotter, 10" Sellers.
Slotter, 24" Garvin die.

GEO. M. BERNSTEIN & CO.
12 So. Clinton St., Chicago, Illinois

FINE TOOLS — LOW PRICES

BORING MILLS — Horiz. & Vert.

Niles-Bement-Pond No. 1½ portable
3½" bar, horiz.
Beaman & Smith 5" bar, horiz.
Bullard 24" vert.
N. B. P. 42", 44", 51", 52" vert.
Colburn 54", 2swivel heads, vert.
Pond 90", 2 heads vert.
Niles 10" vert.

AUTOMATIC SCREW MCHS.

Gridley 9/16", 7/8", 1½", 1¾", 2"
New Britain Nos. 22, 24, 33, 454.
Potter & Johnston Nos. 6A and 7A.
Cleveland 2", 3½", 3", 4" model A.

GEAR CUTTING EQUIPMENT

Brown & Sharpe No. 4—48".
Fellows No. 6, 61, 615 gear shapers.
Fellows Nos. 7, 71, 712 gear shapers.
Fellows No. 8B burnisher.
Gould & Eberhardt 18", 36" hobbors.
Lees Bradner planisher.
Gleason 6", 11", 18" Generators.
Gleason 15" gear & pinion roughers.
Barber Colman Nos. 3, 12 hobbors.
Cleveland 8 spindle gear hobber.

AN EXCEPTIONAL "BUY"

**BUFFALO No. 29-U ARMOR PLATE
UNIV. IRONWORKER (Triple Comb.)**

Net weight about 40,000 lbs.

DRILL PRESSES—Mult. Spdle.

Natco Nos. 11, 12, 13 and 81.
Pratt & Whitney No. 12.
Avey 1 spindle, 3 spindle H. S.
Colburn D-8 Mfg. Drill.
Baker No. 416 High Duty Drill.

TURRET LATHES and SCREW MACHINES

Brown & Sharpe 6F Screw Mach.
Foster No. 1B, No. 3B Univ.
Jones & Lamson 3x36 Steel Head.
Libby 26", 41" Spindle.
Libby 26" Turret; grd. hd.; 7½" spdl.
Gisholt 24" Turret.

MILLING MACHINES

Plain and Universal

Cincinnati No. 2, 3, 4 Plain, SPD.
B. & S. No. 2, 2B, 3, 4 Plain SPD.
Brown & Sharpe No. 2, 3A univ.
Brown & Sharpe No. 1V plain;
latest type.

GRINDERS

Heald No. 72 Hydraulic.
Heald No. 72-A, 3 sizematic.
Bryant No. 3 internal.
Blanchard Nos. 10, 16 surface.
Heald Nos. 50, 55, 60, 65 internal.
Norton 14x72, plain cyl.
Pratt & Whitney No. 14 surface.

LATHES

Niles Bement Pond 46"x15' q. c. g.
Putnam 36"x28' grd. hd. nearly new.
Pittsburgh 36"x38' grd. hd.
Bridgeford 36"x60' boring & turning.
Bridgeford 36"x60' boring.
McCabe 27-49"x16' double spindle.
Lodge & Shipley 24"x10'.
LeBlond 21"x10' cone drive.
Pratt & Whitney 16"x8' all grd. hd.
Greaves Klusman 16"x8' m. in base.
Monarch 14"x10' grd. hd.
Hendey 14"x8' geared head.
Springfield 14"x6' geared head.

MISCELLANEOUS

Henry & W. 50 ton Dicing Press.
Acme 2" steel upsetter.
Nazel No. 2B Hammer.

MILLING MACHINES

Manufacturing

Gooley & Ed. (Briggs) types A&B.
Cincinnati 18", 24" automatic.
Ingersoll No. 3 combined hvy. duty.
Ingersoll 24"x24"x12' planer type.
Ingersoll 24"x24"x12' adj. rail.

MILLING MACHINES

Vertical and Thread

Brown & Sharpe No. 1 vert.
Becker No. 4B, C-1 and C vertical.
Pratt & Whitney 4½x12, 6x14.

RADIAL DRILLS

American 3'.
Reed Prentice 4'.
American 5' triple purpose plain.
Cincinnati Bickford 5' universal.
Mueller 4'.
Dreses 5'.

— Ask for details —

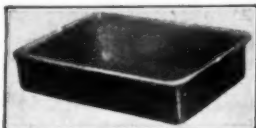
MOREY MACHINERY CO., Inc.
410 Broome Street, New York, N. Y.

Special In Shop Equipment



FACTORY STOOLS — brand new — sturdy welded construction. A rigid factory stool with hard-wood seat and footrest —24" high. Only----- **\$1.55**

Other sizes, with and without backrest. Send for details.



TOTE PANS

5,000 Used, One-Piece Steel Tapered

21x14x5½. 16 gauge. 50c each while they last

PASSMAN BROS.

705 Washington Blvd.

Chicago, Ill.

**EVERY ITEM LISTED IS IN OUR STOCK;
OUR INVESTMENT INSURES THE QUALITY**

LATHES—American 14x6 geared head; 16x8 Cone; 18x8 Cone; 20x8 Cone. Lodge & Shipley 16x6, 18x8 qcg; Cone drive, Dble. spindle, nose. Rockford 14x6, Monarch 14x6, 18x6; Hendey 14x8 grd. hd.; Hendey 14x8 yoke hd.; 14x6 pl. hd. qcg; Pratt & Whitney 14x6; Bridgeford 26x14, geared hd., Taper; 26x16 cone dr. qcg; Boye & Emmes 34x14, Cone dr. qcg. Taper; Pittsburgh 36/60"x18".

SHAPERS — Rhodes 7" with slotter; Wolcott 16"; Smith & Milla 16"-20"-26"; Gould & Eberhart high duty 16" SPD; 20" SPD; 16" cone; 24" SPD; 24" cone. Stockbridge 24" cone; 20" MD. Brown & Sharpe No. 13 Gear Cutter; Schuchart & Schutte 18" Gear Hobber.

MILLERS—Van Norman No. ½; Cincinnati Universal; B & S No. 2A Universal; B&S No. 2B Plain; Kempamith No. 1 (3) No. 2—No. 3 (2); Ohio No. 28 Univ., No. 28 Plain; Oesterlein No. 3 Pl; Cincinnati No. 2 (2) No. 3 (3) Pl.; No. 4 Univ. Becker No. 5, No. 5C, No. 6 Vertical.

MISCELLANEOUS — H. & J. Pyramid Bending Rolls; 10"x½"; D & K Leaf Power Bending Brake 10"x12ga; OHL 10"x16ga. Pwr. Sq. Shear, Stoll 8"x14ga. Pwr. Shr; Niagara No. 642 Sq. Shear 42"x10 ga. 15" gap; Heald Internal Grinder No. 72A; Landis Univ. No. 3 & No. 1; Norton T & C No. 2; Norton Cylindrical Pl. 14x50; Morse 6x32; Bliss Presses 19, 20, 20B, 21; Ferracute 900T Coining; Toledo 16"x¼" Shear; 15" gap; No. 500¼H.

These are only a few items taken at random from our tremendous stock. Every item guaranteed. Send us your inquiries.

Falk Machinery & Supply Co., Inc., 18 Ward St., Rochester, N. Y.

JOHNSON'S BARGAINS

Air compressors, 30' to 2000'.
 Bolt threader, 2 heads, Nat. 1".
 Boring mill, 36" King turret.
 Boring mill, 54" Gisholt 2 heads.
 Boring mill, 60" Colburn 2 heads.
 Boring mill, 42" Colburn, (2).
 Boring mill, 44" Niles, vert., 2 hds.
 Boring mill, 7-10' Betts, vertical.
 Boring mill, 8-12' Betts, vertical.
 Boring mill, hor. 4 1/2 bar Betts knee type.
 Boring mill, horiz., Barrett, 6" bar.
 Buffers, 1 1/2 h. p. Clark, a. c. (2).
 Bulldozers, No. 3-4 and 8.
 Drill, radial, 4' Dreses.
 Drills, 25 various, upright.
 Drills, No. 4 Quint turret.
 Drills, Colburn D4.
 Drills, Baker 24".
 Flanging machine, 1" McCabe.
 Furnaces, various sizes.
 Gear cutter, 11" Gleason bevel gen.
 Gearcutter, 12" Ingle tooth rounder.
 Gearcutter, No. 6 Fellows gr. shaper.
 Gearcutters, No. 1 & 3 Adams hobbess.
 Grinder, Woods Bros. universal.
 Grinder, 6x18" Ott.
 Hammers, Drop, various sizes.
 Hammers, 500 & 25 lb. Little Giant.
 Hammer, 200 lb. Bradley.
 Hammer, steam 4000 to 250 lb.
 Hammer, 80 Perfect.
 Keyseater, No. 2 M & M.
 Lathe, 18"x8' Boye & Emmes.
 Lathes, 18"x8' L. & S. QCG cone.

Lathe, 26"x24' Putnam, heavy duty.
 Lathe, 28"x13' American q. c. g.
 Lathes, turret, No. 3 & 7 universal Bardons Oliver.
 Lathe, 27"x14' LeBlond.
 Lathe, 36" H. S. & G., heavy duty.
 Lathe, turret No. 6 Woods, tilted.
 Lathes, 3 Gridley 2 1/2", Model F., 4 sp.
 Miller, No. 22 universal.
 Miller, Pratt & Whitney spline.
 Miller, No. 4 Brown & S., plain.
 Miller, Waltham thread.
 Millers, No. 1 U. S. hand.
 Millers, Ingersoll, 27"x24"x10'.
 Planer, 36x36x12 W. & P., 2 heads.
 Planer, 32"x32"x12' Gray.
 Planer, 30x30x8 Cinn. 1 head.
 Press, No. 2-3 & 4 Marshalltown, o. b. i., new.
 Presses, 68N and 65C Bliss.
 Presses, hydraulic up push 18" dia. piston 36x28 bolster and pump.
 Punches and shears, structural all sizes.
 Saw, No. 14 Higley.
 Saws, 6x6 Acme.
 Shaper, 16"-20"-24".
 Shear, 3' Niagara, 16 ga.
 Shears, squaring Niagara 8', 12 ga.
 Shears, 310 Niagara ring & circle 1/4"
 Shears, 44" Bertsch sq., 16 ga.
 Seamer, double Bliss No. 5.
 Straightening roll No. 2 H & J, new.
 200 electric motors and generators.
 Gas oil, and steam engines.
 1000 other tools available.

Wm. C. Johnson & Sons Machinery Co.
1211-1223 Hadley Street, St. Louis, Mo.

NEW 3 Phase Motors 1 to 20 H. P., 5 H. P.-----\$55.75

LATHES

11"x4' Shaffner Bench (new).	16"x8' South Bend.
11"x5' Summit Floor Type (new).	16"x8' Monarch with taper att.
10"x6' Sidney Lathe, floor type.	16"x5' Monarch, motor drive.
10"x5' Monarch, floor type.	14"x8' Young.
12"x5' LeBlond.	14"x8' Monarch, 3 step, cone
12"x6' Monarch.	double back.
14"x6' Reed.	20"x10' Bradford.
14"x6' LeBlond.	24"x24' Prentice.
16"x8' Hamilton, quick change.	24"x10' LeBlond extra heavy duty

SHAPERS

16" B. G. Queen City. (2)	25" Smith & Mills.
20" & 21" Smith & Mills.	14" Niles travelling head.

MILLING MACHINES

No. 1½ Valley City, plain.	24"x20"x8' Ingersoll.
No. 4 LeBlond plain.	No. 1 Kempamith Universal.
No. 2 Brown & Sharpe, heavy.	No. 25 Becker plain.

MISCELLANEOUS

Planer, 36"x36"x14' Gray.	Press, No. 24 Toledo Cam Drawing
Planer, 42"x42"x10' Gray.	Press, No. 75, No. 2 o.b.i. Toledo.
Planer, 36"x36"x12' American.	Presses, New Federal & Robinson.

THE OSBORNE & SEXTON MACHINERY COMPANY COLUMBUS OHIO

Dept. H.

WRITE US—WE CAN LOCATE IT

AUTOMATICS: Nos. 60, 9, B. & S.
BOLT THREADER: 1½" Landis,
M. D., grd. hd., with lead screw.
BROACH—Hydraulic:
No. 3 Oilgear Type XA.
DRILLS: 20", 25", 28" Barnes, 24"
Cincinnati, b. g., t. a. 4 spd.,
Aveymatic, L. & G.
GRINDERS: face, 84" Diamond;
disc, 26" Badger, No. 4 Gardner;
surface, No. 3 Wilmarth & M.,
No. 2 Brown & S., 12" Pratt & W.,
8", 16" Heald rotary.

MILLERS: No. 2 Cincinnati, Grd.
Univ.; Nos. 1½ & 2 B. & S., m. d.,
No. 2 Kempsmith, No. 35 Ohio.
Vertical; No. 4-B Becker.
NIBBLER, No. 1 Campbell.
PLANERS, 30"x8' & 36"x10' Gray.
PUNCH PRESSES: Horn, 4A
Bliss; o. b. i. No. 1 Amer. Can.
No. 20 Bliss; No. 01 V. & O.; No. 3½
Toledo; No. 4 Niagara.
Double crank, No. 76A Stoll.
Str. sided, 37½ & 74½ Bliss;
SCREW MACHINES: No. 6 W.

SPECIALS

No. 2-A WARNER & SWASEY UNIVERSAL TURRET LATHE;
No. 4 CINCINNATI VERTICAL MILLING MACHINE S.P.D.;
2½" FOSDICK RADIAL DRILL M. D.

HACKSAWS: 6" x 6" and 9" x 9"
Racine, 6" x 6" Peerless shaping
m. d.

LATHES: 12"-14"-16"-18" Hendeys,
14" to 30" Lodge & Shipley,
16"x8' & 20"x8' Monarch,
30"x10' Prentice, grd. head,
24"x12' Schumacher Boye.
22"-44" B.B. Gap Spinning Lathe.

S., No. 1 & 5 Foster; No. 1 P&W.
SHEARS: corrugating, 30" Bertach,
ring & circle, No. 65 Niagara.
SHAPERS: 14" Whipp, 24" Amer.
20" to 28" Gould & Eberhardt.
WELDERS: arc, 200 amp. USL,
Butt, 15 kw Toledo; spot, 5 kw
Dyer, 25 kw Tol., 13 kw a Taylor.

Partial Listing — Let Locate Your Needs

VICTOR MACHINERY CO., 130-132 S. Clinton St.,
CHICAGO, ILLINOIS

AUTOMATIC SCREW MACHINES

No. 00G—Brown & Sharpe.
No. 0G—Brown & Sharpe.
No. 0—Brown & Sharpe—Rod Magazines.
No. 5A—Potter & Johnston.

DRILLS—HI-SPEED BALL BEARINGS

1—2—4—6 Spindles—Avey, Allen, etc.

GRINDERS

No. 22 Heald.
No. 33 Abrasive.
No. 14 Pratt & Whitney.
No. 10 Brown & Sharpe, Plain.
No. 11 Brown & Sharpe, Plain.
No. 1 Brown & Sharpe, Universal.
No. 2 and No. 4 Gardner Disc Grinders.

MILLERS

No. 1 Kearney and Trecker Vertical, rotary table.
No. 1 Brown & Sharpe Plain, taper nose.
No. 0 Brown & Sharpe.
No. 0Y Brown & Sharpe.
No. 1B Hendey Universal.
18" Cincinnati Automatic Millers.
No. 2 and No. 3 Garvin Duplex.
No. 6 Whitney Hand Millers.

HAND SCREW MACHINES

No. 0 and No. 2 Brown & Sharpe.
No. 6 Warner & Swasey.

PRESSES

No. 19 Bliss.
No. 21 Bliss.
No. 16B Bliss Horning.
No. 5 Loshbough & Jordan, O. B. I.
No. 4 Baird.

LATHES

12"x5' Reed-Prentice, Geared Head, M. D.
16"x8' Lodge & Shipley, Geared Head, M. D.
16"x8' Hendey

A FINE SELECTION OF ARBOR PRESSES.

SAWS-MOTORS-RIVETERS-WOODWORKING MACHINES

OIL SEPARATORS-BENCH LATHES-TAPPING MACHINES

SEND FOR LATEST CATALOGUE

SEND US YOUR INQUIRIES.

Machinery Dealers, Inc.
419 CHAPEL ST., NEW HAVEN, CONN.

HARRY DALITZ

701 E. 96th St. CLEVELAND, OHIO

THE FOLLOWING MACHINES PRACTICALLY NEW

2—No. 6, 36" FELLOWS GEAR SHAPERS Complete with assortment of High Speed Cutters each \$490 00
ANDERSON ROTARY DIE FINISHING MACHINE, Motorized \$160.
MITTS & MERRILL No. 0 KEY SEATER, \$140.
GARVIN AUTOMATIC TAPPER No. 2, \$98.
STEEL PRODUCTS No. 1 GAUGE GRINDER With Motor \$125.
AMERICAN BROACH PRESS, a Buy \$90. ATKINS KWIK CUT.
POWER HACK SAW No. 1 Complete \$90.
DEANE 6"x8" TRIPLEX HIGH PRESSURE Water Pump with 15 HP
CROCKER WHEELER Motor & Remote Control Starter complete and in A-1 shape, \$275.
2. PANGBORN SAND BLAST CABINETS Type EA-1 each \$60.
CLEVELAND AUTOMATIC SCREW MACHINE Mod. B 1/2" \$160.
REYNOLDS AUTO. SCREW DRIVER MACH. Serial M-3789 \$90.
ROCHESTER DIE SHAPER ATTACHMENT for Milling Machine 4 1/4" Arm, 6 1/4" Between Centers \$75.

The above prices are net F.O.B. Cleveland, Ohio

Subject to prior sale.

6' Fosdick Radial Drill.
5' Dresses Radial Drill.
4' Western Radial Drill.
30"x30"x10' Pond Planer.
24" Gould & Eberhardt Shaper.
No. 4 Cincinnati Univ. Miller.

No. 4 Becker Plain Miller.
No. 2 Rockford Plain Miller.
20"x8' Prentice Lathe, Grd. Hd.
18"x12' Hendey Lathe.
16"x10' South Bend Lathe.
16"x8' American Lathe.

DELTA EQUIPMENT CO.

148 N. 3rd St.

Philadelphia, Pa.



MOTORS

Completely rebuilt, modernized and performance tested. REAL MONEY SAVING PRICES. Get full details and Low Prices from Moreco before you buy. All sizes—standard makes. We buy, sell, and exchange.

THE MOTOR REPAIR & MFG. CO.
1540 Hamilton Ave., Cleveland, O.

A Few Of Our 2,000 Machines

PLANERS

92"x87"x42' N.-B.-Pond.
84"x84"x20' N.-B.-Pond.
84"x60"x14' N.-B.-Pond.
72"x72"x12' N.-B.-Pond.
56"x56"x12' N.-B.-Pond.
56"x48"x12' Cincinnati.
48"x48"x20' Detrick and Harvey.
48"x48"x10' Cincinnati.
42"x42"x20' Niles-Bement-Pond.
36"x36"x14' Gray.
30"x30"x8' Cleveland Openside.

GRINDERS

No. 16 Blanchard Vertical.
14" Pratt & Whitney Vert. Surface.
No. 33 Abrasive Surface.
No. 20 Heald Rotary.
12"x36' Landis Plain.
14"x50' Norton Plain.
14"x72' Norton Plain.
14"x96' Norton Plain.
18"x84' Landis Plain.
Nos. 2, 3, 4 B. & S. Universal.
No. 13 B. & S. Universal.
No. 1 LeBlond Universal.

MISCELLANEOUS

40"x1" Southwark Bending Roll.
13"x $\frac{1}{2}$ " N.-B.-P Bending Roll.
90" Niles-Bement-P. Wheel Lathe.

SHAPERS

48" Morton Draw Cut.
28" Columbia.
26" Cincinnati Traveling Head.
24" Gould & Eberhardt.
24" American.
16" Gould & Eberhardt.
6" Pratt & Whitney Vertical.

BORING MILLS

16' Niles-Bement-Pond Vertical.
10-16' Betts Extension Vertical.
96" N.-B.-Pond Vertical.
90" Pond Vertical.
84" Bullard Vertical.
84" Betts Vertical.
60" Colburn Vertical.
62" N.-B.-Pond Vertical.
53" N.-B.-Pond Vertical.
44" N.-B.-Pond Vertical.
36"-44" Niles-Bement-Pond Vert.
36" Bullard New Era.
24" Bullard New Era.
7" Bar D and H Horizontal.
6" Bar Esplan Lucas Horizontal.
No. 6 Barrett Horizontal.

LATHES

109"x50' Niles Bement Pond.
96"x50' Niles-Bement-Pond.
36"x26' Lodge & Shipley.
30"x36' Bridgeford.
30"x14' Lodge & Shipley.

RADIALS

6' Cincinnati-Bickford Plain.
5' Cincinnati-Bickford Plain.
5' American Triple Purpose Plain.
5' Niles Right Line Plain.
4' Cincinnati-Bickford Plain.

MILLERS

No. 4-B Brown & Sharpe Plain.
No. 4 Cincinnati Plain.
No. 3-B Milwaukee Plain.
No. 3 Cincinnati Plain.
No. 2 Cincinnati Plain.
No. 2 Cleveland Universal.

Need some good tools? Let us quote you

Write for Catalogue

Simmons Machine Tool Corp.

ALBANY, N. Y.

149 Broadway, New York, N. Y.

3¹ Morris Radial Drill, Motor on Arm, Timken Bearings, Tapping Att.
 3¹ Western Radial Drill, "Heavy Duty" Tapping Attach.; Box Table.
 28"x12' Boye & E. Lathe, Q. C. G. Double Back Geared, Taper Attach.
 20"x10' Hendey Lathe, Geared Head Motor Driven, Q. C. G., Pan Bed.
 18"x10' Boye & E. Lathe, Q. C. G. Double Back Geared, Taper Attach.
 16"x6' Hendey Lathe, Geared Head Motor Driven Q. C. G. Pan Bed.
 20" Gould & E. Shaper, "High Duty" Motor Driven B. G. Crank.
 20" Gould & E. Shaper, "High Duty" Back Geared Crank, Cone Drive.
 24" Automatic Open Side Shaper, Single Pulley Drive, Fully Equipped.
 4 Spindle Allen Drill Press, Motor Driven, Ball Bearing, High Speed.
 Nos. 1, 2 & 3 Brown & Sharpe Vertical Milling Machines, Motor Driven.
 No. 2 Brown & Sharpe Plain Milling Machine, Cone Driven, Complete.
 No. 2B B. & S. Plain Milling Mch. Mtr. Driven "Tapered Spdl. Nose".
 No. 2A B. & S. Universal Mill Motor Driven "Tapered Spindle Nose".
 No. 3A B. & S. "Heavy Duty" Universal Mill, Motor Dr., Fully Equip.
 4¹ Fosdick Floor Type Horizontal Boring Mill, Fully Equipped.
 5¹ D. & H. Floor Type Hor. Boring Mill, Self Contained Motor Drive.
 No. 1 Brown & Sharpe Universal Grinder, Motor Dr. Fully Equipped.
 No. 2 B. & S. Surface Grinder, Motor Driven, Magnetic Chuck.
 No. 2 Brown & S. Wire Feed Screw Mche., Complete with Collets.
 6"x6" Racine "Shear Cut" High Speed Hack Saw, Motor Dr. Complete.
 100 K. V. A. Gibb Seam Welder, 440 V., 60 Cy., Complete with Motors.
 No. 3 Consolidated O.B.I. Punch Press, Motor Driven, 3¹ Stroke.
 No. 3 B. & S. Reamer and Cutter Grinder, Motor Driven, Complete.
 No. 2 Campbell Nibbler, Motor Driven, 12" Throat, $\frac{1}{8}$ " Capacity.

Clinton Machinery Company

33 South Clinton St., Chicago, Ill.

ATTENTION!!!

No. 55A Toledo Sgl. Cr. Prestie rod;
 6" stroke.
 No. 96-A Toledo Dbl. Cr. Press, 6"
 stroke-Spring Bed pad.
 900-Ton Zeh & H. percussion Press,
 M. D.
 No. 5-C Becker Vertical Mill, SPD.
 No. 3 Kempsmith Univ. Mill; Vert.
 Head.
 No. 3 Becker Univ. Mill. complete.
 No. $\frac{1}{2}$ Van Norman Mill, Rebuilt.
 Full Ass'tment Turret Lathes.
 No. 1-B Foster Univ. Turret Lathe.
 48"x48"x12' Hamilton Planer incl.
 motor; 4 heads; box tbl.
 19"x8' Le Blond rebuilt Lathe.
 No. 12 Bryant Int. Grader motor drive
 and motor.
 Four Hyd. Internal Grinders, M. D.
 No. 13 B. & S. Univ. Grinder & Att.
 No. 3 Cincinnati Universal Grinder,
 3 motors.

R. A. VINE, 652 W. Willis Ave., Detroit, Mich.

200amp. Hobart Bat. Chrg. 7.5v. 1750
 36" Crescent Band Saw. $\frac{1}{2}$ " saw.
 250 ton Hyd. press, platen 30"x100".
 5000lb. dbl. frame N.B.P. Steam ham.
 1100 lb. sgl. frame steam Forg. Ham.
 24" Gould & Eberhardt Shaper.
 26"x11' Wickes D. B. C. Hvy. Duty
 All Steel Squar. Shear, 54", 14 ga.
 10"x1" Wickes Bend. Rolls Pyr. Type.
 8x8x1" H. & I. Angle Sh. on turntbl.
 10' Niles Ver. Boring Mill, B. D.
 6" Merrell pipe Cutting & Th. Mch.
 Lennox Rotary Bevel Shear, $\frac{3}{4}$ " cap.

84" Sellers Vertical Bor. Mill, B. D.
 30" Bullard Mill, Turret Head.
 48x1" L. & A. Pl. Sh. on turntbl. m. d.
 300 amp. Lin. Port. DC Arc Welder.
 400 HP new Water Tube Boiler.
 10ton Hand pwr. trav. Crane 46'8" span.
 60x48"x14' 3 head Niles Planer.
 400 KW AC Steam Generating Set.
 20"x10' Hendey Lathe dbl. friction CS.
 No. 3 B. & S. Automatic Gear Cutter.
 3 $\frac{1}{2}$ " Ajax iron bed Forg. & Upset Mch.
 72" Bullard Vert. Bor. Mill D.C.M.D.
 No. 2 Baker Keywater, M. D.

Russell Machine Co., 438 Oliver Bldg., Pittsburgh, Pa.

High Grade Machine Tools

Lathes

42"x20" American Geared Head.
42"x18" Bridgeford Grd. Hd. S.P.D.
36"x24" L. & S. Grd. Hd.
27"x16" L. & S. Grd. Head.
18"x14" Monarch Geared Head.
26"x14" Bridgeford Grd. Hd. S.P.D.
21"x10" LeBlond Grd. Head.
14"x6" Lodge & Shipley Grd. Hd.
All Sizes Cone Head.

Grinders

16"x72" Cincinnati Crankshaft.
Type A Production Abrasive Finishing
Nos. 50, 55, 60, 65 and 70 Heads.
6"x18" Landis Plain, Self Contained.
10"x52" Landis Plain, Self Con.
No. 78 Wilmarth & Morman.

Gear Cutters

No. 3, 26", No. 4, 36" Brown. & S.
Gear Cutters.
Nos. 1, 2, 4 Adams Farwell Gear Hb.
18-H Gould & Eberhardt Hobber.
No. 6 Fellows Gear Shaper.
No. 5—60" Newark Gear Cutting
Machine.

Bolt and Pipe Threaders

1/4" Landis Double Spindle Lanco Hds.
2" Landis Double-Spindle.

Boring Mills

60" Cincinnati Heavy Duty Vertical.
42" Colburn Vertical Mill Rap. Trav.
42" Niles Boring Mills, 2 heads.
14" Beta, Cone Drive.
60" Niles Boring Mill, 2 heads.

Shapers

20" Ohio, motor driven.
16", 20", 24" Gould & Eberhardt
motor drive, thru gear box.
16", 20" and 24" G. & E., cone drive.

Milling Machines

24" Cincinnati Automatic.
No. 3 Cincinnati Universal.
No. 4 Cincinnati High Pwr. Univ. S.P.D.
No. 2 & 3 Kempsmith Plain, M. D.
No. 3 LeBlond H. D. Plain.
Nos. 2 & 3 Kempsmith Universals.
No. 2 Hendey Universal.
5" Pratt & Whitney Automatic.
18" Cincinnati Plain Mfg. Miller.
Briggs Manufacturing Miller.
No. 7-H Becker Lincoln type.
No. 1 Knight Miller and Driller.

Planers

30"x30"x8" American two heads.
30"x30"x16" Gray, two heads.
24"x6" Ohio.
26"x26"x8" Cleveland Openside.

Radial and Upright Drills

24" Cincinnati Bickford Upright, tap.
2 1/2, 3, 3 1/2, 6" Cincinnati-Bick. S. P. D.
3, 3 1/2, 4 American Trip. Pur. S.P.D.
3" Bickford Plain, S. P. D.
No. 2 Colburn Mfg. H. D. 2-spindle.
No. 40 Natco Straight Line Multi.

Miscellaneous

No. 3-B LaPointe Broaching Mche.
80lb. Bradley Cushion Helve Hammer
High Speed Riveting Hammers.
Nos. 1 & 3 Baker Keyseating Mches.
No. 2 Mitts & Merrill Keyseater.
Nos. 1 & 2 Davis Keyseaters.
V-18 Amer. Vert. Broaching Mche.
15, 30 & 50 Ton Lucas Forcing Pr.
96A Toledo Double Crank Press
No. 163B Consolidated Dbl. Crank.
No. 1 & 2-X Garvin Tapping Mches.
No. 4 W. & S. Univ. Turret Lathe.
Nice Variety of Sizes of Presses.

Write for Complete Catalogue—We Buy, Sell and Exchange

Cincinnati Machinery & Supply Co., 217 East Second St., CINCINNATI, OHIO

12' Atlas Vertical Boring Mill,
two swivel heads, one extra boring head,
belt drive, in operative condition, 80'
table, very low price for quick sale.

The Norton-Broadway Machinery Co.
610 Baymiller St., Cincinnati, Ohio

—PRICED RIGHT FOR IMMEDIATE SALE—

Chicago Pneumatic Type NS-B Simplate Valve AIR
COMPRESSOR, 12x10, 369 ft. displ. at 285 RPM,
100 lb. pressure, with Lubricator, Unloader and Idler.

*Our LIST No. 65 shows COMPLETE STOCK of FOUNDRY and
INDUSTRIAL EQUIPMENT BARGAINS available
for QUICK DELIVERY.*

Scully-Jones & Co., 1905 S. Rockwell St.,
CHICAGO, ILLINOIS

REBUILT — IMMEDIATE DELIVERY

No. 4-G LeBlond Plain Miller, S. P. D.
No. 3-B Milwaukee Universal Miller with vertical attach., S. P. D.
24" Gould & Eberhardt Shaper, cone drive.
24"x12' Greaves-Klusman Lathe, cone drive.
14"x6' Hendey Lathe, draw-in attachment, cone drive.
12"x72" Landis Plain Grinder.
4½' Morris Radial, gear box.
3-Spindle Leland-Gifford Drill, with tapping heads.
No. 1-B and No. 2-B Edlund 2 spindle Drills.
No. 1 Hoosier Heavy Duty Drill, M. D.

Iroquois Machinery Co., 646 Ohio Street,
BUFFALO, N. Y.

EXCEPTIONAL VALUES

Shear, Niagara No. 3120, 10' 10 ga. motor driven.
Shear, Niagara No. 3144, 12', 10 ga. motor driven.
Lathes, Sidney 15"x9', and Monarch 16"x8' Quick Change Geared.
Shapers, Kelley 16"; Smith & Mills 16", B. G.
Planer, 36"x36"x15' openside, 2 heads.
Turret Lathe, Warner & Swasey No. 6 Friction Head.
Miller, B. & S., No. 3-B Heavy, Plain; No. 1 Kemper Smith, Plain.
Drills, Punch Presses, Air Compressors, Belting and Motors.

Midwest Equipment Co.

628-30 W. Lake St.,

Chicago, Ill.

UNUSUAL TOOLS

Automatics, Cone, 1¼" M. D.
 Bulldozer, No. 24 Williams & White.
 Drill, Radial, 3' Amer. Motor on Arm.
 Drill, Radial, 3½' Morris; 3' Western.
 Drill, 4-Spd. No. 2 Leland-G 12" ovhg.
 Drill, 4-Spd. Allen No. 2 MT 15"

Lathe, 16"x6' & 18"x8' Hendeys SPD.
 Lathe, 30"x10' Reed Prentice M. D.
 Mills, No. ½, 1½-A & 2B K. & T.
 Mills, Rotary, No. 1 & 2 Craftsman.
 Mills, No. 2 & 3 B. & S. Vert. M. D.
 Mills, No. 2B & 3B B. & S. S. P. D.

No. 6 Grd. Hd. Warner & Swasey Turret Lathe, M. D.
No. 1A and 2A Warner & Swasey Turret Lathes, M. D.
No. 72 Heald Hydraulic Internal Grinders, M. D., (4).

Grinder, No. 70 Heald Duplex, Internal.
 Grinder, Nos. 70 & 75 Heald Internal.
 Grinder, No. 2 B. & S. Universal.
 Grinder, Pratt & Whitney Surf., b. b.
 Lathe, 18"x8' Monarch Gd. Hd. M. D.

Mill, No. 3GH Hendeys Univ.
 Mills, 18" and 24" Cin. Pl. & dup.
 Oil Groover, Wicaco.
 Presses, Various sizes, types (35).
 Shaper, 20" Columbia Gear Box M. D.

HARVEY GOLDMAN & CO.
 10567 Gratiot Ave., Detroit, Mich.

:- LUCAS LIST :-

2½" Bar Universal Horizontal Boring Mill.
 3½" Bar Landis Table Type Horizontal Boring Mill.
 No. 3 Barber Colman Gear Hobber.
 No. 10 Brown & Sharpe Plain Grinder M. D.
 14"x36"-42" Model 81 type B Norton Crank Pin Grinder.
 No. 72 Heald Internal Grinder 3 Motor Drive.
 No. 72A3 Heald Sizematic Grinder.
 Nos. 16 and 16A Blanchard M. D. Surface Grinders.
 No. 6-B Nazel Air Hammer.
 18"x8' Lodge & Shipley Selective G. H. Lathe.
 5½" and 6¾" Model A Cleveland Automatics.

J. L. LUCAS & SON, Inc.
 3 FOX ST. BRIDGEPORT, CONN.

VICTOR'S BARGAINS IN New Carbon Taper Or Straight Shank Drills



These drills were made by nationally known manufacturers

Size	Our Price each	Size	Our Price each	Size	Our Price each	Size	Our Price each	Size	Our Price each
		37/64	.50	29/32	.50	115/64	1.00	19/16	1.50
		19/32	.50	59/64	.50	11/4	1.25	137/64	1.50
		39/64	.50	15/16	.50	117/64	1.25	119/32	1.50
		5/8	.50	61/64	.50	19/32	1.25	139/64	1.50
		41/64	.50	31/32	.50	119/64	1.25	15/8	1.50
		21/32	.50	63/64	.50	15/16	1.25	141/64	1.50
		43/64	.50	1	1.00	121/64	1.25	121/32	1.50
		11/16	.50	11/64	1.00	111/32	1.25	143/64	1.50
3/8	.25	45/64	.50	11/32	1.00	123/64	1.25	111/16	1.50
25/64	.25	23/32	.50	13/64	1.00	13/8	1.25	145/64	1.50
13/32	.25	47/64	.50	11/16	1.00	125/64	1.25	123/32	1.50
27/64	.25	3/4	.50	15/64	1.00	113/32	1.25	147/64	1.50
7/16	.25	49/64	.50	13/32	1.00	127/64	1.25	13/4	2.00
29/64	.25	25/32	.50	17/64	1.00	17/16	1.25	125/32	2.00
15/32	.25	51/64	.50	11/8	1.00	129/64	1.25	113/16	2.00
31/64	.25	13/16	.50	19/64	1.00	115/32	1.25	127/32	2.00
1/2	.50	53/64	.50	15/32	1.00	131/64	1.25	17/8	2.00
33/64	.50	27/32	.50	111/64	1.00	11/2	1.50	129/32	2.00
17/32	.50	55/64	.50	13/16	1.00	133/64	1.50	115/16	2.00
35/64	.50	7/8	.50	113/64	1.00	117/32	1.50	131/32	2.00
9/16	.50	57/64	.50	17/32	1.00	135/64	1.50	2	2.00

We will allow you 10% off our price, as given above, if you order 12 drills or more.

Satisfaction guaranteed. Send for our new Catalogue.

VICTOR MACHINERY EXCHANGE
251 CENTRE STREET, NEW YORK, N. Y.

ADVANCE NOTICE

Auction Mon., Tues., Wed., Thurs., Jan. 24, 25, 26, 27th, 1938 **Auction**
at 10:30 A. M. Each Day—We Will Sell

AT ABSOLUTE PUBLIC AUCTION

**THE ENTIRE STOCK AND INVENTORY OF THE
INDUSTRIAL MACHINERY COMPANY
2100 to 2300 FLETCHER AVENUE, INDIANAPOLIS, INDIANA
RETIRING FROM BUSINESS
WORLD'S LARGEST NEW ELECTRIC MOTOR DEALERS
OVER \$1,000,000.00**

Inventory consisting of:

14,000 NEW ELECTRIC MOTORS

**Ranging In Horsepower From Fractional to 350 H. P. In All
Specifications From Such Prominent Manufacturers As**

**GENERAL ELECTRIC—WESTINGHOUSE—WAGNER
MASTER-LELAND—EMERSON—FAIRBANKS-MORSE, ETC.**

Also

2,000 USED ELECTRIC MOTORS FROM 1 H. P. TO 200 H. P.

**Of Various Makes, Together With
Hundreds Of Other Items, Both New And Used, Such As Motor
Generator Sets, Starters, Compensators, Welders, Panel Board Equip-
ment, Portable Gasoline Driven Generators, Pulleys, Etc.**

OVER \$250,000.00 INVENTORY

Consisting Of:

600 USED METAL AND WOODWORKING MACHINE TOOLS

**475 Metal Working Tools, Consisting Of—Motor and Belt Driven, Milling Machines,
Punch Presses, Radial Drills, Shapers, Shears, Lathes, Grinders, Welders, Etc.**

**125 Woodworking Tools, Motor and Belt Driven, Consisting Of, Planers, Sanders,
Saws, Boring Machines, Mortisers, Moulders, Tenoners, Frequency Changers, Etc.**

Also

All Kinds Of Small Tools, Such As Drills, Milling Cutters, Taps, Dies, Saws, Vises, Etc.

Absolutely the finest Diversified Stock of Motors & Equipment Ever Offered at Public Auction.

REAL ESTATE VALUED AT \$300,000.00

Consisting of:

7½ ACRES—250,000 SQUARE FEET BUILDINGS—3 SWITCH TRACKS, ETC.

**Valuable Good-Will—Customers' Names, Etc. Will Also Be Offered
Inspection Beginning Wednesday Jan. 19, 1938**

**Motor Dept. Will Be Sold Monday and Tuesday
Machinery Will Be Sold Wednesday and Thursday.**

Descriptive circulars will be mailed upon request when available

SAMUEL L. WINTERNITZ & COMPANY

Auctioneers

38 S. Dearborn St.,

Chicago, Illinois

—THE BEST IN USED MACHINERY—

No. 1 Leland Gifford drill, tap, att.
3 spindle Leland Gifford drill,
power feed to each spindle.
3 spindle Avey drill.
2 spindle Avey Drill, power feed to
each spindle.
4 spindle Fosdick Drill, spline
shaft spindle drive.
14x6, 16x6, 18x10 Hendey Lathes.
No. 2 & 3 Van Norman Duplex Mills.

2—24" Cincinnati Automatic Mills.
48" Cincinnati Automatic Mill, with mtr.
18" Cincinnati Duplex Mill.
18" Cincinnati Mill, Mfg. type.
No. 3 Cincinnati Plain Mill, M. D.
No. 2-S Cincinnati Plain Mill.
No. 2 Adams Farwell Gear Hobber.
Sundstrand Centering machine, m.d.
No. 2, 4 & 6 W & S screw machines.
Grinder, No. 3 Brown & Sharpe univ.

A large stock of good tools—your inquiries solicited.

C. C. HOWARTH MACHINERY CO.

1440-44 Franklin Street

Detroit, Michigan

— FOR IMMEDIATE SHIPMENT —

Buffer & pol., No. 15 Webster-Perks.
Burnishing barrel, No. 1 Baird.
Drills, Buffalo, sgl. and two spdl.
Pipe machines, 8" capacity.
Presses, No. 3-B & 13 Bliss toggle.
Presses, Nos. 1, 2, 4 & 5 L. J.
Presses, Dbl. Crk., No. 4 & 4½ Bliss.
Presses, punching, 31 & 32 Toledo.
Presses, V & O No. 2½ (3).
Presses, Bench Types.
Presses, No. 21 Bliss O. B. I.

Presses, No. 16 Bliss horning w. tbl
Presses, No. 14 V & O double acting
Presses, hyd., 10" ram, Southwark
Rivet hammers, No. 1½ B Hi-Speed
and 5-A and 5-B.
Rivet spinners, No. 80, 81, 120 Grant.
Shears, 42" power.
Thread Rollers, No. 201½ V & O.
Vertical miller, Model D Becker.
Welders, Thompson 17 KVA.
Welders, Acme 7½ KW & 3 KW.

J. N. MOYER 469 North Fifth St., PHILADELPHIA, PA.

SAVE MONEY WITH OUR QUALITY TOOLS

No. 2 Brown & Sharpe Surface Grinders, motor driven.
26"x11" Lodge & Shipley Hvy. Duty Lathe, q. c. g., standard equipment.
20" Gould & Eberhardt High Duty Shaper, motor drive.
18"x8" Hendey Lathe, yoke head, quick change geared.
18"x10" Monarch geared head Lathe, motor in base q. c. g.
6x6 Peerless Hack and Universal Shaping Saws, belt and motor drive.
Nos. 1, 3, 4 and 5 open back inclinable Punch Presses.
1, 2, 3 and 4 spindle H. S. Drill Presses, hand & power feed, all makes.

Send us your inquiries.

SURPLUS STOCK & MACHINERY CO., 620 W. LAKE ST., CHICAGO, ILL.

Boring Mills — Vertical

10' Niles, 2 swivel heads.
60" Bullard, Rapid Traverse, M. D.

Grinders and Millers

No. 30-M Giddings & Lewis Miller
—Planer Type, M. D.
26"x120" Landis, Plain, M. D.
Model CS Becker, Continuous, Vert.

Lathes

72"x40" Putnam, Grd. Hd., M. D.
66"x30" Johnson, cone dr., hvy. duty.
60"x30" Pittsburgh, Motor Drive.
28"x17" Chard, motor drive.

Planers

72"x72"x12" Cinc., 3 Hds., M. D.

Hammers & Keyseaters

6-N Hazel Air Hammer, M. D.
No. 29 Catlin Keyseater, M. D.

Priced Low — Partial Listing — Send Your Inquiries

ROSENKRANZ, WEISBECKER & COMPANY, INC.
2309-A Singer Building, New York City, N. Y.

LATHES

- 10"x8' Whitcomb-Blaisdell geared head, new
- 18"x8' Whitcomb-Blaisdell, geared head.
- 16"x6' Hendey, tie bar.
- 24"x12' New Haven, quick change.
- 18"x8' Lodge & Shipley, geared head.
- 40"x20' Lodge & Davis, cone head.
- 40" raised to 53" Prentice, cone head.
- 1"x18" Pratt & Whitney AUTOMATIC.

BORING MILLS

- 2½" Cleveland horizontal.
- 42" Niles Vertical, 2 heads.
- 42" Gisholt, turret and plain hd., motor dr., power rapid traverse.
- 54" Bausch two heads.
- 60" Bullard, 2 heads, D. C. motor drive.
- 42" Niles Car Wheel Boring Mill.

MILLING MACHINES

- No. 5 Brown & Sharpe plain, single pulley.
- No. 4 LeBlond Universal, cone head.
- No. 3-H LeBlond Plain Heavy Duty.
- 24" Osterlein Universal, cone drive.
- 1-B Kearney & Trecker, double overarm, motor driven.

The Norton-Broadway Machinery Co.

610 Baymiller St., Cincinnati, Ohio

GUARANTEED USED MACHINERY

Turret lathe, No. 1-B Foster.
Air Compressor, 6x6 Curtis dbl. cyl.
Bar cutter, No. 8 Buffalo.
Borer, cylinder, No. 5-D Moline, 6 sp.
Burnishing mche., No. 1 Baird, double ball.
Drill, No. 1½ Avey, 3 spindle.
Drill, No. D-3 Colburn, h.d., 3" cap. in steel.
Drill press, 4 spindle No. 2 Avey.
Drill radial, 5' Am. triple purpose.
Grinder, No. 10 Besly double disc.
Grinder, 18" Diamond face.
Grinder, No. 3 Abrasive surface.
Grinder, No. 33 Abrasive surface, vertical.
Hammer, 1200 lb. Bliss, board drop.
Lathe, 26"x12' Ryerson grd. hd. m.d.

Lathe, stub, 12" Sundstrand.
Miller, No. 2B K.&T. pl. complete.
Miller, No. 13-B B. & S.
Miller, No. 1 Kempsmith univ.
Miller, No. 2 Kemps. pl. maxi. m. d.
Planer, 56"x56x12' Gray.
Planer, Cleveland 48x48x12 openside, factory rebuilt.
Press, No. 18 Bliss o. b. i.
Press, No. 5 Bliss solid back, m. d.
Press, No. 5 Cons. 2 crks., 1" & 3" str.
Screw machine, No. 4 W. & S.
Shaper, 20" S. & M. m. d.
Shaper, 20" American s. p. d.
Shaper, 16" American s. p. d.
Shear, 10' 16 gage Niagara, m. d.
Shear, 10' 18 ga. Pexto power.

All machines backed by Essley guarantee

THE E. L. ESSLEY MACHINERY CO.

831 W. EVERGREEN AVE.,

CHICAGO, ILL.

WHY LOOK FURTHER

ENGINE LATHES

12"x6' Prentice.
14"x6' LeBlond.
14"x6' Hendey.
14"x8' Hendey.
14"x6' Bradford.
14"x8' Reed-Prentice.
14"x6' Prentice.
16"x8' Hendey.
16"x9' Chandler.
16"x8' American.
16"x8' March.
16"x8' LeBlond.
16"x6' Pratt & Whitney.
18"x8' LeBlond.
18"x8' Lodge & Shipley.
18"x8' Prentice.
18"x8' Schumacher & Boss.
20"x14' Hendey.
20"x10' Greaves Kinsman.
20"x8' LeBlond.
22"x8' Lodge & Shipley.
24"x10' Prentice.
24"x10' American.
24"x16' Sidney "Tritrol".
25"x10' Ryerson-Conradson.
26"x12' Wickes.
26"x16' Bridgeford.
26"x20' Bridgeford.
27"x16' LeBlond.
27"x16' Bridgeford.
30"x13' Wickes.
30"x11' H-S-C.
30"x26' Lodge & Shipley.
36"x22' Bridgeford.
36"x32' Bridgeford.
36"x38' Bridgeford.
36"x15' Lodge & Shipley.
42"x24' Putnam.
56"x20' Lodge & Shipley.
56"x34' Pond.

TURRET LATHES

No. 4—No. 7 Bardons & Oliver.
No. 4—No. 6 Woods Tilted.
Nos. 1A, 2, 2A, 3A, 4, 6 W. & S.
No. 1B, No. 2B, No. 5, No. 7 Foster.
18"—26" Libby.
No. 4 Gisholt.
Jones & Lamson, double spindle.
2 1/4"x26"—3 1/4"x36" Acme.
2"x24" Jones and Lamson.

PRODUCTION LATHES

8"—12"—15" Sundstrand Stub.
Nos. 6—9—12 LeBlond Multi-Cut.
Nos. 1F—3F Foster Fastermatic.
9"x12"—9"x20" Porter Cable.
Model R Lo Swing.
3 1/2"x36"—3 1/2"x60"—3 1/2"x84" Lo Swing.
4"x36" Lo Swing.
7"x60"—8"x60" Lo Swing.
30" Gisholt Simplimatic.
14"x19"—14"x33" Fay Auto.
Nos. 4D, 5A, 6A, 6C Potter & J.
No. 3 Lodge & Shipley Duo-Matic.
14"x5' LeBlond.
17"x6"—17"x8' LeBlond.
17"x10' LeBlond.
19"x8' LeBlond.
20"x8' LeBlond.
21"x8"—21"x12" LeBlond.
20"x6"—20"x7' 6" Wickes.
20"x10' Wickes.
20"x6' Sebastian.

MILLERS

(Plain—Univ.—Vert.)

1Y—2B—No. 4—No. 4B—No. 5B
Brown & Sharpe.
No. 2—3—3S—4 Cincinnati.
Nos. 1A—2A—2B—3—3B Kearney
& Trecker.
No. 2—No. 4 Kempsmith Maximill.
No. 3—No. 3H LeBlond.
No. 0 Rockford.
No. 2 Ryerson-Conradson.
No. 1 Cincinnati Univ.
No. 3AU Carvin Univ.
No. 4B Kearney & Trecker Univ.
No. 1 Ryerson-Conradson Univ.
No. 3—No. 5C—No. 6 Becker Vert.
No. 1H—No. 2 Cincinnati Vert.
No. 2 Brown & Sharpe Vert.
No. 4B Kearney & Trecker Vert.
Taylor & Fennell Vert.
D-1 Becker Vert.
Billings & Spencer Vert.
No. 2—No. 3 Pratt & Whitney Vert.
E-4 Keller Profiling.
12"—18" Cincinnati.
No. 1A Kearney & Trecker.
No. 32—No. 33 Kempsmith.
No. 3 Sundstrand Rigidmill.
18"—24"—48" Cincinnati Duplex.

*This is a partial list. Many others
Structural and Sheet Metal Tools—G*

LOUIS E. EMERMAN & CO

ER? WE'VE GOT IT—

18"-24"-48" Cincinnati.
3-36"-4-36"-4-48" Cincinnati Dup.

Hydromatic.
No. 13B Brown & Sharpe.

HIGH SPEED DRILLS (1 to 4 spindles)

No. 1½—No. 1½—No. 2—No. 3 Avey.
No. 2—No. 3 Avey-Matic.

14"-16" Allen.

14" Canedy Otto.

14"-16" Demco.

16" Detroit.

1B-2B-3B-4B Edlund.

13"-16" Foadick.

16" Gordon.

No. 3 Henry & Wright.

6" Langelier.

No. 1—No. 2—No. 3 Leland Gifford.

No. 2 Pierle.

16"-24" Sipp.

12"-14"-16" Taylor & Fenn.

UPRIGHT DRILLS

28"-40" Aurora.

20"-22"-26"-34"-42" Barnes.

21"-24"-28"-(25-36") Cincinnati.

20" Canedy Otto.

14" Excelsior.

21" Foadick.

26"-32" Hofer.

26" Hamilton.

22" Milwaukee.

28" Rockford.

21" Superior.

28" Snyder.

21"-25" Weigel.

RADIAL DRILLS

2½" Ayer Bench Type.

3"-4"-5"-6" American.

3" Carlton.

2½"-5"-6" Cincinnati.

4" Hammon & Mod. B.

4" Foadick.

3½" Morris.

5" Prentice.

5"-8" Ransom.

4"-6" Thompson.

HEAVY DUTY DRILLS

No. 121-216-217-310 Baker.

No. 314-315-422-513 Baker.

20"-22"-24" Barnes Camel Back.

No. 2—No. 4 Colburn Mfg.

D-2-D-4-D-5 Colburn.

20"-21"-24" Cincinnati Prod.

24" Defiance.

No. 1 Hoosier.

No. 23-24-25 Foote Burt.

No. 1 Minster.

No. 9 Natco-Minster.

No. 12 Minster.

GANG DRILLS

2-3 and 4-spindle No. 2 Colburn.

2-spindle No. 6 Colburn.

2-spindle 28" Cincinnati.

4-spindle 24" Cincinnati.

6-spindle 42" Cincinnati.

2-spindle 22½" Barnes.

6-spindle No. 242 Barnes.

RAND DRILLS

2-3 spindle No. 1 Foote-Burt.

4-spindle No. 1 Foote-Burt.

2-4 spindle No. 4½ Foote-Burt.

4-spindle No. 13D Moline.

8-spindle No. 64D Moline.

8-spindle Moline Hole Hog.

MULTIPLE DRILLS

No. 1-12-13-14-16-C5-C12

C13-14-B12C-No. 30 Natco.

No. 15HC-No. 27HC Fox Hyd.

No. 15-No. 22C-D-25 Fox.

No. 1-No. 3-No. 4-No. 36 Baush.

Boley.

GRINDERS

No. 16-No. 16A Blanchard.

No. 2 Brown & Sharpe.

No. 20-No. 22-No. 255 Heald.

No. 4 Diamond.

No. 5 Abrasive.

14" Model B Pratt & Whitney.

8"-14" Pratt & Whitney.

84" Diamond.

No. 1 Gardner.

No. 78 Wilmarth & Morman.

No. 2-No. 3 Cincinnati centerless.

No. 10-No. 12-No. 14 Brown & S.

8x30-6x20-6x30 Landis Hyd.

8x18-8x36 Cincinnati Saddle Type

10x18-10x36 Norton BA.

12x18 Cincinnati Plunge Cut.

6x18-10x24-10x36-12x52-12x72

Landis.

10x36 Landis Camshaft.

No. 132 Arter.

6x32-10x50-14x50-14x72-14x36

Norton.

Also a very large stock of presses,
machines and Miscellaneous others.

761 Elston Ave., Chicago, Ill.

LATHES

McCabe 50"-27" Dbl. Spdl. DC MD Sch. & Boye 30"x32"; qcg; b. d.
American 30"x18" lcg. lathe tap. att. bd.
Schum. & B. 26"x16" g. h.; qcg; arr. md.
Reed 24"x12" l. c. g.; s. b. g.; cone dr.
Pond 26"x10" l. c. g.; s. b. g.; cone dr.
LeBlond 19"x10" hd. qcg; belt drive.
LeBlond 18"x8" l. c. g.; d. c. mtr. driven.
LeBlond 17"x6" Plain Turning; bd.
LeBlond 17"x6" Mfg. Type; belt dr.
American 16"x8" lcg; lathe; cone drive.
Bradford 16"x8" hd. q. c. g.; cone dr.
Chard 16"x8"; 60" centers cone drive.
Champion 14"x6" l. c. g.; belted cone dr.
Seneca Falls 14"x6"; full q. c., e. d.
LeBlond 14"x6"; full q. c., e. d.
Willard 13"x6" Semi-qcg, collets.
LeBlond No. 9 Multi-cut; air chk.; md.
Streit 24" Pulley lathe; cone dr.
Ideal 7"x28" Self-Con't. bench lathe.
Blount 11"x4" Speed lathe; bd.

SHAPERS

24" Cincinnati, b. g., h. d. cone drive.
22" Ohio, b. g., cone drive.

MISCELLANEOUS

(2) 3¼" Gridley Auto. Scr. Mach. b. d.
2¼" Gridley Auto. Scr. Mach. b. d.
Cleveland M-4 spdl. auto. chuck. mch.
(4) B & S No. 3 26" gear cutters; b. d.
24" Hoeffer Upright Drill, B. G., p. f.
22½" W F & J Barnes HD gang drill.
Fosdick 6" encl. hd. radial; mtr-on-arm;
Fosdick 5" box. col. radial; spd. thru gr.
Dreses 5" rd. col. radial; arr. SP or MD.
Dreses 5" pl. radial; arr. AC or DC.
Mueller 4" Plain Radial; spd gear box.
Barnes 3-spin. 22½" drill; all PF; BD.
Rockford 3-spin. 22½" drill all PF; BD
Foote-Burt 4-spin. HD; power fd. bd.
Mueller 4" rd. Column Radial; sp or md.
Cinci-Bickford 3" radial drill; arr. m. d.
Moline 8-spin. hole hog type drill; spd.
Ohio No. 3 cutter & tool grinder; b. d.
Landis 20"x96" pl. Cyl. grinder. b. d.

Landis Plain Self-Contained Cylindrical grinding machine; capacity swings 20" takes 96" between centers; grinding wheel 24"x3"; arr. for motor drive; first class condition.

BORING MILLS

3" bar Rochester horizontal; sp or m. d.
3" bar Fosdick horizontal; spd or md.
4" bar Fosdick No. 2-A Floor type cd.
King 42" Vertical bor. mill; 2 hds. md.
Rockford No. 1½ pl. milling mach. cd.

MILLING MACHINES

Cincinnati No. 4, HD plain.; cone dr.
LeBlond No. 3-HD Plain; 3-step c. d.
Brown & S. No. 12 Plain Cone Drive.
Brown & Sharpe No. 4B Plain; spd.
Garvin No. 12 plain Miller; c. d.

PLANERS

60"x60"x14" Cincinnati; 2 hds.; b. d.
55"x55"x30" Betts, 2 hds.; d. c. m. d.
48"x36"x10" Gray; 2 hds.; d. c. m. d.
36"x36"x10" Gray; 2 hds.; d. c. m. d.

No. 2 Diamond surf. grinder, motor dr.
Heald No. 72 Hydraulic grinder b. d.
B & S 14"x72" Plain Cyl.; b. d.
Atkins No. 3 metal band saw; b. d.
Coch-Bly No. 5 metal cutting saw; spd
Gardner No. 24-53" bb disc grinder; md
Gardner No. 6 bb disc (20") grinder; bd
LeBlond No. 1 cut. & tool grinder; b. d.
Landis No. 1½ universal grinder; bd.
Foote-Burt No. 25 h. d.; drill; spd.
Foote-Burt 4-spindle adj. rail; b. d.
Avey 6-sp. Sensitive b. d.; belt drive.
Amer. 28" BG HD shaper; m. d.; late.
American Shaper; arr. for motor drive.
(2) 36"x36"x12" Chandler hd pl; BD
Toledo Power Squaring Shear; cap.
¾"x12" 1"; arr. m. d.
Niagara Shear No. 272; 16 ga. x6"; m. d.
No. 2A W. & S. turret lathe. (2)
No. 4 W. & S. turret lathe, pwr. fd.

THE E. A. KINSEY CO.

333 West Fourth St.,

Est. 1886

Cincinnati, O.

Index of Advertisers

A

A-I Screw Machine Products Co.	116	Clinton Machinery Sales Co.	164
Aaron Machinery Co.	155	Colonial Bushings Co.	24
Abart Gear & Machine Co.	106	Cotwell, S. G.	124
Acme Industrial Co.	73	Comet Tools, Inc.	120
American Hollow Boring Co.	110	Commercial Centerless Grinding Co.	130
Ames Co., B. C.	147	Continental Mch. Specialties, Inc.	121
Anderson Bros. Mfg. Co.	139	Conway Clutch Co.	22
Apex Machine Co.	61	Craley Mfg. Co.	131
Armco Company	117	Cullman Wheel Co.	Back Cover
Armstrong-Blum Mfg. Co.			
Armstrong-Bray & Co.	122		
Armstrong Bros. Tool Co.	47		
Atlas Press Co.	115		
Ayer Mfg. Co., F. H.			

B

Baldor Electric Co.	37
Banner Mfg. Co.	71
Baumbach Mfg. Co., E. A.	119
Belyea Company	160
Bennett-Rofkin Mch. Tool Corp.	173
Berkeley Engineering Co.	108
Bernstein & Co., Geo. M.	176
Beverly Throatless Shear Co.	126
Black Diamond Saw & Mche. Works, Inc.	
Bradley Machinery Co.	165
Brandt Machinery Sales	155
Breuer Electric Co.	85
Brewster Company, Inc.	149
Brown Machinery Co.	163
Brown & Sharpe Mfg. Co.	21
Brownell Machinery Co.	163
Buffalo Forge Co.	10, 11
Burke Machine Tool Co.	172
Burns Machinery Co., F. W.	112
Burr & Son, J. T.	

C

Candey-Otto Mfg. Co.	19
Carlson Mfg. Co., C. H.	120
Carroll & Son, Wm.	124
Chicago Die Casting Mfg. Co.	125
Chicago Electric Co.	170
Chicago Gear Works	116
Chicago Rawhide Mfg. Co.	104
Chicago Rivet & Machine Co.	96
Chicago Wheel & Mfg. Co.	101
Cincinnati Mch. & Supply Co.	185
Clark Machinery Co.	155
Clinton Machinery Co., Chicago	184

D

Dalitz, Harry	182
Dayton Rogers Mfg. Co.	128
Delta Equipment Co.	182
Delta Mfg. Co.	36
Diamond-Stephen Mfg. Co.	124
Dreis & Krump Manufacturing Company	Inside Back Cover
Dremel Mfg. Co.	39

E

Eastern Machinery Co.	166-167
Emmerman, Louis E.	192, 193
Eisler Engineering Co., Inc.	132
Errington Mechanical Laboratory	111
Essex Brass Corp.	143
Esley Machinery Co., E. L.	191
Etco Tool Co.	95

F

Failor-Strafer Machinery Co.	164
Falk Mill Supply Co., Inc.	178
Famco Machine Co.	121
Federal Press Co.	49
Federal Products Corp.	26
Flynn Manufacturing Co.	
Ford Mfg. Co., M. A.	40
Ford Motor Co.	119

G

Galland-Henning Mfg. Co.	35
Gallmeyer & Livingston Co.	5
General Blower Co.	155
Gits Bros. Mfg. Co.	42
Goldman, Harvey H.	187
Graham Manufacturing Co.	115
Grant Mfg. & Machine Co.	106
Greene, Tweed & Co.	69
Greenerd Arbor Press Co.	126
Grobet File Corporation	132

Index of Advertisers—Continued

H

Hackett, J. Lee	159
Hamilton Tool Co.	116
Hammond Machinery Builders	198
Hanna Engineering Works	
Hardinge Brothers, Inc.	6
Hartford Special Machinery Co.	149
Harvey Mfg. Co.	131
Harvill, H. L., Inc.	13
Haskins Co., R. G.	
Hassall John, Incorporated	114
Heuser Mfg. Co.	
High Speed Hammer Co.	
Hill-Clarke Machinery Co.	175
Hobart Bros.	102
Holmes Products Co.	118
Howarth Machinery Co.	190
Hyman & Son, Joseph	162

I

Illinois Testing Laboratories, Inc.	133
Indianapolis Machinery & Supply Co.	176
Industrial Machinery Co.	172
Interstate Machinery Co.	171
International Machinery Co.	163
Iroquois Machinery Co.	186

J

Jabette Mfg. Co.	129
Johnson & Sons Mch. Co., Wm. C.	179
Johnson Tool Co.	128
Jones & Lamson Machine Co.	16
Jones Mch. Tool Co. Cincinnati.	170

K

Kinsey Co., E. A.	194
Klauber Machinery Co.	160
Knu-Vise Products Co.	113
Kreuger & Hudepohl	104

L

L-W Chuck Co.	99
Lang Machinery Co.	156
Lenney Machine & Mfg. Co.	41
Lewthwaite Machine Co., T. H.	153
Linley Bros. Co.	151
Littell Machine Co., F. J.	75
Long Machinery Corp.	164
Lovejoy Flexible Coupling Co.	126
Lucas & Son, J. L.	159, 163, 167
Luma Electric Equipment Co.	135

M

M-B Products	130
--------------------	-----

McDonald Machinery Co.	168
McMahon Co., Frank	112
Machinery Dealers, Inc.	181
Madison-Kipp Corp.	117
Mall Tool Company	59
Mart-Galbreath Machinery Co.	157
Marshalltown Mfg. Co.	107
Martin Tool & Die Works, J. E.	110
Master Lamp Co.	108
Master Machine & Tool Co.	97
Master Tapper Co.	
Meylan, A. R. & J. E.	122
Midwest Equipment Co.	186
Midwest Tool & Engineering Co.	112
Miles Machinery Co.	169
Modern Collet & Machine Co.	63
Modern Machine Corp.	128
Morey Machinery Co. Inc.	177
Morrison Machine Products, Inc.	7
Motor Repair & Mfg. Co.	182
Moyer, J. N.	190

N

National Machine Tool Co.	98
Nicholson & Co., W. H.	98
Nielsen, Inc.	114-133
Norgren Co., C. A.	
Norton-Broadway Machinery Co.	186, 191
Nutmeg State Machinery Corp.	162

O

O'Brien Machinery Co.	159
Odin Universal Corp.	45
Oliver Instrument Co.	27
Oliver Machinery Co.	
Oliver Motorcraft Corp.	153
Onsrud Machine Works	126
Osborne & Sexton Mch. Co.	180
Ott Machinery Sales, Inc.	156

P

Passman Brothers, Inc.	178
Peck, Stow & Wilcox Co.	29
Pier Equipment Co.	93
Plunket Machine Co.	129
Porter Machine Co.	122
Porter Machinery Co., C. O.	165
Pratt & Whitney	20
Precision Tool Co.	103
Printz Electric Co.	135
Procurier Safety Chuck Co.	34
Production Machine Co.	123
Progressive Tool & Cutter Co.	51
Pruett Machinery Co.	165
Putnam Tool Co.	23
Pyrometer Instrument Co.	132

Q

Queen City Machine Tool Co.	12
----------------------------------	----

Index of Advertisers—Continued

R

R & L Tools.....	8-9
Racine Tool & Machine Co.....	127
Rasmussen Machine Co.....	143
Reich Mfg. Co., J. R.....	116
Reliance Machinery Sales Co.....	162
Rickert Shafer Co.....	137
Ridge Tool Co.....	28
Rigid Tool Holder Co.....	127
Rivett Lathe & Grinder, Inc.....	4
Robbins Engineering Co.....	
Rockford Drilling Machine Co.....	57
Rogers & Co., Samuel C.....	124
Rogers Mfg. Co., Dayton.....	128
Rosenkranz, Weinbecker & Co.....	190
Ross Co., David J.....	25
Ross Operating Valve Co.....	77
Russell Boring Bar Co.....	128
Russell Machine Co.....	184
Ruthman Machinery Co.....	123

S

Schauer Machine Co.....	151
Scherr Co., George.....	147
Schmidt, Geo. T., Inc.....	91
Scott-Bansbach Machinery Co.....	158, 9
Scully-Jones & Co.....	79-186
Segal Machinery Co.....	165
Seneca Falls Machine Co.....	122
Service Co.....	164
Simmons Machine Tool Corp.....	183
Sjogren Mfg. Co.....	Front Cover
South Bend Lathe Works.....	18
Stackbin Corp.....	89
Standard Electrical Tool Co.....	
Standard Gage Co., Inc.....	67
Standard Machinery Co.....	155
Standard Pressed Steel Co.....	83
Strand & Co., N. A.....	15
Strippit Corporation.....	118
Strong, Carlisle & Hammond Co.....	174
Sturdinatic Tool Co.....	141
Super Tool Co.....	
Surplus Stock & Mchy. Co., Inc.....	190
Sutton Tool Co.....	31

T

Tannewitz Works.....	118
Taylor Machine Co.....	145
Temco Electric Motor Co.....	130
Titan Tool Co.....	105
Tomkins-Johnson Co.....	14
Triplex Screw Co.....	30

U

United Machinery & Supply Co.....	164
Universal Engineering Corp.....	139-145
Used and Rebuilt Machinery.....	155-194

V

Vacuum Cup Metal Pulley Co.....	120
Victor Machinery Co.....	180
Victor Machinery Exchange.....	188
Vimco Mfg. Co.....	38
Vine, R. A.....	184
Vonnegut Moulder Corp.....	53

W

Wain Machinery Sales, Chas. E.....	165
Walker-Turner Co., Inc.....	32
Walls Sales Corporation.....	141
Walton Co.....	137
Ward Machinery Co.....	3
Wardwell Manufacturing Co.....	125
Wells Manufacturing Corp.....	65
Wertman Machinery Co.....	162
Western Machine Tool Works.....	55
Western Tool & Mfg. Co.....	120
West Penn Machinery Co.....	161
White Dental Mfg. Co., S. S.....	
White Machinery Co., A. D.....	174
Whitney Metal Tool Co.....	17
Whitney Mfg. Co., W. A.....	33
Wigglesworth Machinery Co.....	163
Wilson, K. R.....	109
Winternitz & Co., Samuel.....	189
Witek Manufacturing Co.....	87
Wolnick Machinery Sales.....	160
Wyzenbeek & Staff.....	81

Y

Yobe Supply Co., Wm. S.....	112
Yost Mfg. Co.....	118

HAMMOND

GRINDERS & POLISHERS



NEW LOWER PRICES

Send Quickmail Coupon No. 23
for Catalog—price list.

Hammond Machinery Builders
KALAMAZOO, MICHIGAN

COMPACT—EFFICIENT



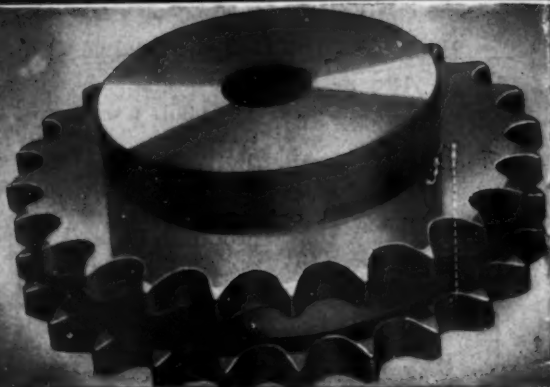
NO. 253 CHICAGO PRESS BRAKE

with
**Variable Speed
Drive**
for **RAPID** and
ECONOMICAL
forming of sheet
metal sections

Save on operating costs! The compact and powerful CHICAGO PRESS BRAKE No. 253 will do 40% to 50% of the sheet metal forming work usually done by larger machines and is faster and more economical to operate. Light in weight, it saves floor space and is easily moved. Installation costs are low, and the price is less than half that of machines having the same capacity but weighing three to five times as much. There's work in your shop for a CHICAGO.

Send Coupon No. 7 for Illustrated Bulletin and Low Price.

DREIS & KRUMP MFG. CO.
7440 Loomis Blvd., CHICAGO, ILL.



C
U
L
M
A
N

Over 45,000 Sprockets in
Stock for Block, Roller and
Silent Chains.

OUR stock consists of all popular
sizes for Standard Chains and
we also have many Sprockets for
Non-standard Chains.

Special Sprockets are made to
suit your requirements.

Chains for all Sprockets always
on hand.

Send Quickmail Coupon No. 4 for Our New Catalogue

The Cullman Wheel Co.
1359 Altgeld Street, Chicago, Illinois

S
P
R
O
C
K
E
T
S

THE HISTORY OF THE